

8-13-2015

SciTech News- 69(3)-2015

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Recommended Citation

(2015) "SciTech News- 69(3)-2015," *Sci-Tech News*: Vol. 69: Iss. 3, Article 1.

Available at: <http://jdc.jefferson.edu/scitechnews/vol69/iss3/1>

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SciTech News

The Official Bulletin for the Chemistry, Engineering, and Science-Technology Divisions and the Aerospace Section of the Engineering Division and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association



ISS016E019394

Volume 69, Number 3 (2015)
ISSN 0036-8059

SciTech News



On the Cover

"Al Wadj Bank, Saudi Arabia is featured in this image photographed by an Expedition 16 crewmember on the International Space Station. Saudi Arabia boasts the most coral reefs of any Middle Eastern country, as it includes coastline along both the Red Sea and Gulf of Arabia. This high resolution image depicts a portion of the Al Wadj Bank, located along the northern Red Sea coast. Despite the relatively high salinity of Red Sea water (compared to other oceans), approximately 260 species of coral are found here, according to scientists."

"The portion of the Bank in this image illustrates the complex form and topography of the reef system. Several emergent islands (tan) - surrounded primarily by dark green seagrass - are visible, the largest located at top left. Only the islands are above the waterline -- over the reef structures the water color ranges from light teal (shallow) to turquoise (increasing depth)."

Photo and caption credit: NASA Marshall Space Center, <https://www.flickr.com/photos/nasamarshall/3926807090>

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Copy Deadline

Issue Number 1	Feb 1
Issue Number 2	April 1
Issue Number 3	Aug 1
Issue Number 4	Nov 1

SciTech News

Volume 69, Number 3 (2015)
ISSN 0036-8059

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SCITECH NEWS (ISSN 0036-8059) is published quarterly (March, May, September, December) by the Chemistry, Engineering, and the Science-Technology Divisions, the Aerospace Section of the Engineering Division, and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association, 132 Hemingway Place, Georgetown, KY, 40324, (859) 539-5810.

Publication Policy: *SciTech News* is the official bulletin of the Chemistry, Engineering, Science-Technology Divisions, the Aerospace Section of the Engineering Division, and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association. The contents of articles and editorials are not to be construed as being or representing the official position of the sponsoring divisions.

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Manuscripts: The Editor solicits papers of interest to the community of science and technology-oriented special libraries. Manuscripts of articles should be sent via E-mail (Microsoft Word or Plain Text format) to jcusker4031@gmail.com.

Subscriptions: Special Libraries Association members in the Chemistry, Engineering, Science-Technology Divisions, the Aerospace Section of the Engineering Division and the Materials Research and Manufacturing Section of the Chemistry Division automatically receive subscriptions to *SciTech News*. Their annual subscription fee of \$1.00 is paid from their annual dues to the Special Libraries Association.

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From the Editor

Jeremy Cusker



I will not go too deeply into the consultant's report to the SLA's leadership which was discussed so heavily at the conference in June (and continues to be discussed as I write this column). Different members of our association can come to different conclusions. I will only point out that what is true of SLA overall does not seem to be quite as true of many of the science- and technology-related chapters of which I am a part: I was pleased to learn at the various business and leadership meetings I attended in June that we have generally stable finances, stable or growing membership and healthy attendance at our conference programs.

Whatever changes the SLA's national leadership decides to make in response to the report, one thing I hope our own chapters preserve and maintain is our commitment to librarianship as an international ende-

avour. In particular, there was some good discussion about the need to offer financial support to librarians from less-wealthy countries to allow them to travel to and attend our conferences.

This is a small part of a much larger topic sometimes referred to as 'third world science'. The scientific output of nations in South and East Asia, the Middle East and the Persian Gulf and elsewhere outside those nations we normally think of as scientific powerhouses is growing rapidly. Preserving and managing the output of this large new population of researchers will require librarians with both new and old skills. Our association should make it as easy as possible for such people to join, learn from us and to teach us as well.

What have you been doing lately?

SciTech News wants to know! Please send us information about your awards, promotions, professional publications and presentations or other recognition. We'll publish your activities in *SciTech News*, bringing your news of our members' accomplishments to the wider SLA and library communities.

Send such information to Jeremy Cusker, jcusker4031@gmail.com by October 1 for publication in the next issue of *SciTech News*.

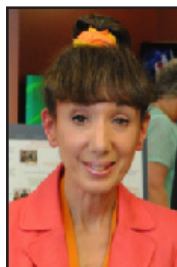
Do you have a research project?

SciTech News is interested in publishing refereed research articles on library science topics. If you would like to submit such an article for consideration for publication in *SciTech News*, please contact the editors for details on formatting and creating an anonymized manuscript for referee review.

News from the Science-Technology Division

Science-Technology Division Sheila Rosenthal, Chair

The objectives of the Science-Technology Division shall be to draw together those members of the Special Libraries Association having an interest in the role of library and information science as applied to the recording, retrieval and dissemination of knowledge and information in all areas of science and technology, and to promote and improve the communication, dissemination and use of such knowledge for the benefit of libraries and their users.'



Dear SciTech News Subscribers,

My column this quarter is a reflection of the exciting SLA 2015 Annual Conference in Boston, MA where the SciTech Division really supported the Conference Theme, "Be Revolutionary!" by changing the timing and/or format of our "Newcomers Dinner" and "Awards Reception" as well as our introduction of some "non-traditional" program topics that were very well received!

I arrived in Boston on Friday June 12th so that I could be available to meet with some of the panelists who would be participating in the three programs I organized in case they wanted to meet with me in advance of our officially scheduled meeting on Monday June 15th to finalize program logistics. Since none of them were available before Monday, I had time on my schedule to attend the 2016 Conference Planner's meeting from 2:00 PM to 4:00 PM on Saturday June 13th. Directly following this meeting Jeffrey Bond, Chair of the Physics, Astronomy and Mathematics (PAM) division had called a meeting of the "Science Division Chairs" to discuss the consultant's report. This meeting was very beneficial because we reviewed some of the discussion concerning the consultant's report that took place during the SLA Board of Directors Open Session Meeting from 10:00 AM to 2:00 PM that Saturday morning/afternoon. This "Science Division Chairs" group shared most of the same impression of both the consultant's report and Board of Directors Meeting. We concluded that "Yes, the SLA does need to make changes in order to survive as an organization" but we also confirmed that we did not agree with several of the consultants' recommendations – mainly the changes proposed for the breakdown of the Divisions (taken from page 25 of the consultants' report as follows:

Academic/Education

- Business/Finance/Banking/Insurance
- Engineering/Manufacturing/Telecomms/Transportation
- Sciences
- Military/Government
- Pharma/Health
- Agriculture/Food/Environment
- Social Sciences/Law/Media/Journalism/Museums
- KM/Taxonomy/Data/Archives
- Leadership and Workplace Skills
- Library Science/Library Management/MLIS Programs

We also disagreed with the consultants' recommendations for Chapters listed on page 27 of their report, which were the following:

- Reduce the level of challenge for smaller and/or dispersed chapters by enhancing the SLA member offerings available virtually. It should not stand in the way of a member's ability to benefit from the SLA membership and to take advantage of products and services that he or she happens not to live in a major urban area.
- Encourage struggling chapters to transit to caucus status or to merge with other nearby chapters and enforce the reporting requirements for chapters. Large urban areas' chapters do not have difficulty meeting those requirements.
- Reduce the impact on staff by creating 'self-serve' tools for units. For example, a forum for unit leaders could be configured such that it automatically emptied at year end, requiring the new or continuing leaders to sign themselves up for the following year.

Jeffrey Bond shared all of "PAM's thoughts on the new directions" suggested by the consul-

tants with me. I will be happy to share these with anyone in SciTech upon request from our members.

As soon as I returned from the "Science Division Chairs" meeting, my husband and I rushed over to the Atlantic Beer Garden so that we could arrive at 5:00 PM to confirm our reservation and make sure the restaurant would be ready for our guests when they were scheduled to arrive at 6:00 PM that evening. At first the restaurant had set us up in a semi-private area with about five round tables that each accommodated four chairs, for a total of twenty people. Although this setup was ok, we decided it would be better if we had a long straight seating area which did not need to be in a private section of the restaurant just so we were all sitting more closely together instead of at separate tables.

Changing the "Newcomers" event from a lunch to a dinner was a good idea since the dinner was well attended and participants stayed longer and spent more time getting to know each other and learning about our division. People continued to arrive at different times and the restaurant was able to accommodate them quite nicely. Everyone had a great time and I believe this event strengthened the bond between attendees. My recommendation would be to continue to make this a dinner event.

Below is a snapshot of some of the attendees of the Newcomers' Dinner. The picture was taken by Anna Ren who did an outstanding job organizing and hosting this Newcomers' Dinner.



On Sunday June 14th at 9:30 AM my husband and I attended the "Opening General Session and Awards Presentation" and greatly enjoyed Leigh Gallagher's keynote speech. We had listened to her speak numerous times on public radio's "Marketplace" and thought she was an excellent choice for the conference's keynote speaker. I had three personally emotional ties to this "Opening General Session and Awards Presentation" which included the following:

- Seeing my good friend Ethel Salonen being inducted into the SLA Hall of Fame. I really enjoyed viewing the pictures SLA had chosen to include in Ethel's memorabilia as well as hearing her biographical information which included a long and active history within SLA. Ethel had served as President of the Association, beginning as President-Elect in 2003-2004, as well as having held numerous additional positions within the Association. On the Wednesday following the conference Ethel took my husband and me on a tour of Lexington, Massachusetts, which is close to where she lives and later that night we joined Ethel and her husband for dinner at a local restaurant, where the food was outstanding!
- Watching my good friend Dr. Parveen Kumar (P.K.) Jain be announced as a new SLA Fellow – among his collection of pictures I noticed two of me that were taken in March 2012 when my husband and I attended the 2012 Library and Information Professionals Summit (LIPS) in New Delhi, India. He had invited me to present a paper and also to moderate one of the sessions presented at the Summit.
- To see Dr. Susmita Chakraborty receive the "Rising Star" Award. I had written a recommendation in support of Dr. Chakraborty's nomination for this Award. We have also been good friends for many years and she had invited me to write a chapter in the book she edited, "Collaboration in International and Comparative Librarianship" and the title of my Chapter was: "The Role of the Special Libraries Association in Promoting Library Professionals on a Global Scale."

From 1:30 PM to 3:00 PM I moderated the program, "What is Data Visualization" a Science and Engineering 201 Session featuring Mary Frances Lembo, James Manasco and Barbara Wetzel. The very entertaining presentation style that Mary Frances and James have developed over the years consistently provides an effective method of instruction in the wide array of topics they have covered doing their Science and Technology sessions at SLA Annual Conferences. This year's program, "What is Data Visualization" was a 201 Session handled every bit as effectively as their 101 Sessions have been, with the extra added feature of Barbara Wetzel joining them. Barbara is a colleague of Mary Frances where they work at the Pacific Northwest National Laboratory (PNNL) and were therefore able to convey "real work experiences" using "data visualization" providing an excellent segue into James' section of the presentation. He provided information on a wide variety of excellent tools, examples and resources for "data visualization." The audience initiated discussions with each of the presenters exemplifying the interest that this session had generated.

At 7:00 PM Sunday evening, Janet Hughes our SciTech Awards Chair and I hosted the Science-Technology Division's Awards Reception and Presentations. This was really the event in which I personally had the most fun! At first I did not realize that I was responsible for introducing all (or at least most) of the Award Winners which I had always really enjoyed doing since I was the SciTech Awards Chair from 2007 through 2013. We used to conduct this event at the Annual Conferences during our "Annual Business Meeting and Awards Presentation" which had also always included breakfast. This is now the second year we have done this as an evening event to enable more time for our programs during the day. Our Annual Business Meetings for the past two years have been held virtually which is also working out very well. As was done for the first time last year at the Vancouver Conference, this year's event included evening hors d'oeuvres and alcoholic beverages, but this year it was held within the conference hotel in a private room where the

food was delivered by servers from the hotel restaurant. Everyone appeared to be having a great time and I almost hated to interrupt them by announcing the award winners but after the first hour had passed Janet and I wanted to make sure everyone stayed long enough to hear the Award announcements. Using the microphone that was ordered special for this room, making it so much easier for me to get everyone's attention, I initiated the Award announcements at 8:00 PM and I asked if anyone from our division would like to volunteer to take pictures of the Award Winners. Luckily someone readily volunteered (our very own SciTech News Editor, Jeremy Cusker). One of my most embarrassing, but also fun moments was when I called Jeremy to come up to receive his "Division Appreciation Award" not realizing that he was the one serving as our photographer! Jeremy was very nice about this and it turned out to be a "fun" experience for everyone attending. It is very difficult when you only see most of your SLA colleagues once a year at the Annual Conference to remember to associate everyone's face with their name!

Below are the wonderful pictures Jeremy took with his iPhone and next to each picture is the text that was written on their respective awards:

Impossible Award to **Anna Ren** for her persistent dedication to fulfill all of her responsibilities as our Division Secretary and Membership Chair despite obstacles endured from an accident.



Division Appreciation Award to **Beth Thomsett-Scott** for the excellent job she has done as Program Planner for the SLA 2015 Annual Conference,



the excellent job she is doing as Program Planner for the 2016 Annual Conference, and all this while serving as our Division Treasurer.

Division Appreciation Award to William Jacobs



for the excellent job he is doing as Chair-Elect and co-program planner for the SLA 2016 Annual Conference. At the same time Bill is serving as Public Relations Chair and advertising

our Division's Programs for the SLA 2015 Annual Conference.

Division Appreciation Award to Susan Wainscott

for the excellent job she is doing as the Chair of the Strategic Planning Committee, working with her committee members to develop a Strategic Planning Survey. Susan has also graciously volunteered to help wherever she is needed at the 2015 Annual Conference.



Division Appreciation Award to Helen Josephine



for the excellent job she has done as Vendor Relations Committee Chair, establishing important alliances with our vendors' enabling us to continue to plan successful

programs. Helen is also the very deserving recipient of the 2015 Ann Koopman Sci-Tech Achievement Award.

Division Appreciation Award to Jeremy Cusker

for the excellent job he is doing as Editor of our Sci-Tech News, reminding us of

due dates for article submissions, and raising important questions and making excellent suggestions on how to make the best use of funds from the Sci-Tech News budget.



Division Appreciation Award to Nevenka Zdravkovska (No Photo Available) for all of the wonderful suggestions and advice she has provided to our Board Members as the Division's Immediate Past Chair during our Advisory Board Meetings, as well as the revisions she has made to our governing document recommended practices.

Division Appreciation Award to Janet Hughes (No Photo Available) for her ability to make excellent choices and determine the most deserving Award Recipients, As Chair of the Science-Technology Division Awards Committee.

Division Appreciation Award to Roger Beckman (No Photo Available) for volunteering to continue to serve as our Division Archivist after rejoining our Division as a retired member. He will also continue to house the archives at Indiana University and plans to make paper copies of relevant official documents for the archives.

The SciTech Division provides a number of awards for travel to the SLA Conference and to encourage participation in the Division. Titles of these awards and their respective recipients are listed below:



2015 Science-Technology Division S. Kirk Cabeen Travel Stipend Award:
Catherine "Tess" Grynoch

2015 Arabian Gulf Chapter and Science-Technology Division Diane K. Foster Student Award: Waleed Al Badi



2015 Science-Technology and Engineering Divisions Bonnie Hilditch International Librarian Award: Laura Woods



2015 Science-Technology Division Ann Koopman Achievement Award: Helen Josephine (pictured with ASTM award sponsor (left))



I believe that all of the accommodations for this Award Ceremony were perfect this year and I strongly recommend following the same model for the 2016 Annual Conference. Having the event take place in the Conference Hotel, in a separate (private) room with servers delivering the food, using a microphone and having someone available to take

pictures of all of the Award Winners greatly contributed to the successful outcome of this event.

On Monday June 15th I met in two separate sessions with the members of the two Panel Discussion Programs that I developed. The first group I met with was from the "Revolutionize Library Management: Best Practices" Panel Discussion program. We met at 2:00 PM next to the upper level entrance to the INFO-EXPO. I brought my laptop to show each of the five presenters that I had uploaded their presentations on the desktop of my laptop so that we would all be ready to present on Tuesday June 16th at 7:30 AM. I emphasized that since this was a two hour program, we did not need to "rush" too much and that each presenter could have twenty minutes or maybe just a little bit more for their respective presentations. They made a few suggestions for my slide introduction sections where the fonts needed to be made uniform and to finalize the order of presenters. At the end of the hour we all felt ready for the actual presentation that would take place the following morning.

Directly after this meeting at 3:00 PM I met with my next set of panelists for, "Transforming International Science-Technology Librarianship". This group consisted of eight panelists and since the program would only last ninety minutes I told each panelist that they only had about ten minutes for their respective presentations. They all agreed and assured me that timing would not be a problem. Two of the panelists, Susan Henczel and Graham Robertson were also presenters for my third program, "Demystifying the Information Audit: From Knowledge Management (KM) to Enterprise Information Management (EIM) (Master Class)". We met briefly at the end of the second panel's meeting and felt confident that this "Master Class" would also be ready to go live the following day, although they both wished it could have been a two hour session, instead of the ninety minutes scheduled for this program.

Originally I had planned to attend about a half hour of the "All Sciences Poster Session"

that was scheduled from 5:00 PM to 7:00 PM on Monday evening. After the first half hour was up I planned to attend both the "SLA Division Cabinet Meeting" from 5:30 PM to 6:15 PM and the "SLA Joint Cabinet Meeting" from 6:15 PM to 7:00 PM. However since I had to update slides for Tuesday's programs (and all of my programs were scheduled for Tuesday, June 16th) I decided to go straight back to my room and make sure everything was ready for the following morning.

Tuesday June 16th, which ironically was also my 41st wedding anniversary, was truly the most difficult and challenging day of the conference for me. Below I am providing a short summary of what I learned along with some advice for future program planners:

1. Always enforce agreed upon time limits for each presenter and plan to allot time for questions and discussions with the audience at the end of the presentation – this relates to my "Best Practices" panel. Rather than concentrating, as I did, on trying to be sure to fill the complete time slot, it is better to even end the session a bit earlier than to have an "abrupt" ending because the "time was up". Due to the fact that time limits were not strictly enforced for our speakers, the next to last panelist had to cut her presentation very short and the last panelist was completely timed out. She got up to say a few words, telling the audience that her slides would be available on "slide share" and tried to make the best of this unfortunate set of circumstances. I truly appreciated the very professional way she handled this rather uncomfortable situation. I will always feel very badly about this and wish that I could go back and do this over the correct way. What makes this the most frustrating is that we met the day before to specifically discuss the timing for these presentations. My biggest mistake was telling the panelists that they could each have "a bit more" than twenty minutes for each of their presentations, without specifying a time limit on "a bit more"

that is all due to our vendor sponsor "World Scientific Publishing Company" whose representative, Ruth Zhou, was able to attend this program for the first hour and a half, before she needed to go to her booth at the INFO-EXPO. The day before this presentation I stopped by the "World Scientific Publishers" booth and spoke to Ruth, telling her about the book, "Best Practices for Corporate Libraries" edited by Sigrid Kelsey and Marjorie Porter, within which four of the five panelists in our "Revolutionize Library Management: Best Practices" panel, along with myself, had written a chapter. I told her that we were very interested in creating a second edition to this book that would in part be based on some of the information contained in this panel discussion. I asked her if she might be able to attend this panel program and review the presentation with my proposal to publish a second edition of this book in mind. After viewing ninety minutes of this panel, Ruth was very impressed and sent a message to Yubing Zhai, Executive Editor at World Scientific Publishing Co. recommending that she contact me regarding my proposal. I received Ms. Zhai's message the following day in which she said World Scientific Publishing Co. is very interested in collaborating on this project and would like to hear more about the book idea. She also attached a proposal form to her message that I have shared with the "Best Practices" panelists. We are all very excited about this and hope that it results either in a second edition or a brand new book with a slightly different focus.

2. Organize your sessions so they are not "back-to-back" and try to give yourself time to discuss and review the session directly after it is completed – my "Master Class" was scheduled within fifteen minutes of the conclusion of the "Revolutionize Library Management: Best Practices" panel and since my laptop was used for both sessions I needed to literally grab it and run (upstairs to the main ballroom) for the Master Class and rush to set my laptop up again – I felt like I was under tremendous pressure. In addition I felt particularly badly about rushing away after the "Revolutionize Library Management: Best Practices" program especially given the way it concluded. I would have loved to have had the opportunity to immediately apologize to the last two panelists, who as it turned out I was never able to see in person before the Confer-

There is one "bright side" to this session and

ence ended.

3. Try not to have your session scheduled for the afternoon of the last day of the conference if possible. This relates to the "Transforming International Science-Technology Librarianship", a program which contained many very interesting and talented participants from around the world, some of whom were very worthy of having the entire ninety minutes be devoted to their presentation alone, which would have given them a chance to generate a great deal of interest from the audience. As this turned out, attendance for this program was extremely low, with understandably very little audience participation. Additional advice – never schedule more than five panelists for a two hour session and for a ninety minute session, three or four at the most.

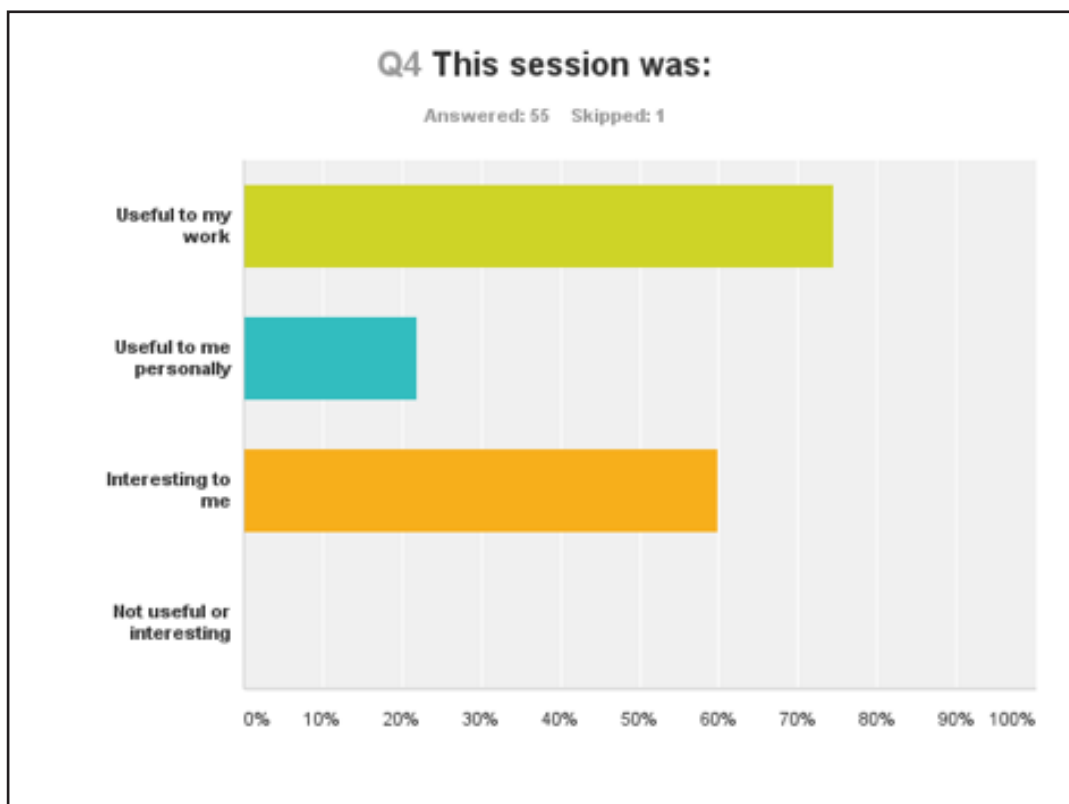
For all three of the panel discussions described above I would also like to recommend a "rehearsal" of each presentation to assure that the entire program fits together well. Unfortunately this is often not possible due to location of the presenters and timing, even if done virtually, scheduling becomes complicated when trying to coordinate international time zones.

I would like to try and create SLA Webinars for all three of the programs listed above, provided I am able to generate enough interest in this project from the respective panel participants.

Beth Thomsett-Scott had created a feedback form

in Survey Monkey entitled "2015 SciTech Conference Feedback" and I had entered all of the survey responses I brought back from the Boston Conference into this online survey. They all pertained to our Master Class "Demystifying the Information Audit: From Knowledge Management (KM) to Enterprise Information Management (EIM)". This survey does not show any other entrees and unfortunately when I contacted members of our Executive and Advisory Boards for feedback on the other programs they did not have anything to report.

Below I will describe some of the feedback responses from the SciTech feedback form in Survey Monkey "2015 SciTech Conference Feedback" on "Demystifying the Information Audit: From Knowledge Management (KM) to Enterprise Information Management (EIM)". There were a total of fifty-six responses that I entered into Survey Monkey and they were very favorable overall. I remember that Deb Hunt attended this Master Class with Cindy Shamel, of Shamel Information Services and who is also one of SLA's consultants. At the end of this Master Class when it was time for questions, Ms. Shamel stepped up to the



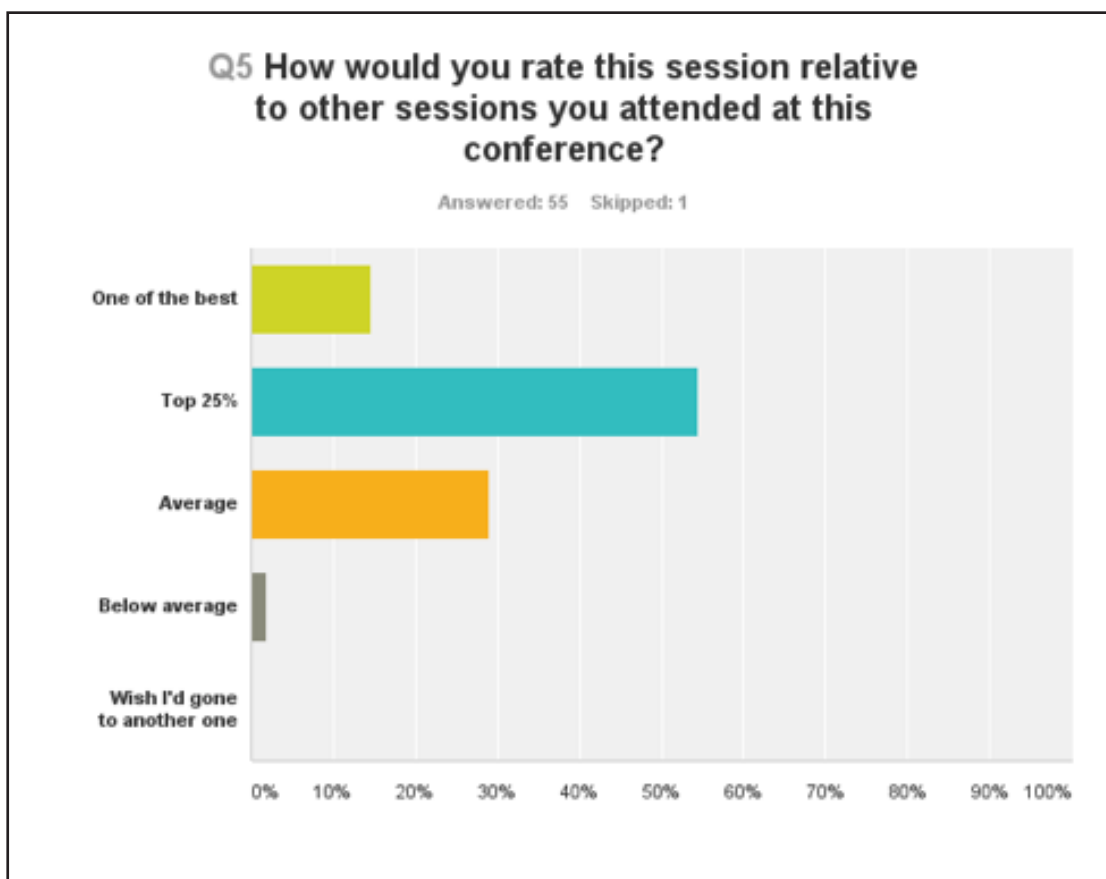
microphone to talk with Susan Henczel concerning some of the information she presented. My interpretation was that Ms. Shamel really appreciated this Master Class, finding it very useful in regard to the work she is doing for SLA.

I also remember many attendees coming up to speak with Susan Henczel and Graham Robertson at the end of the program thanking them for their presentations.

I have captured two graphs from Survey Monkey displaying the overall impression of this program and how well it ranks among the other SLA programs at the Boston Conference.

The second Science-Technology Master Class was "The Science of 3D Printing" which took place at the same time as the "Transforming International Science-Technology Librarianship" and I believe may have been a strong reason why the international program had such a small audience.

Although I do not have copies of the survey feedback for the program, "Revolutionize your Data: Tools for Visualization" which was this year's Computer Science Round Table, I know from stopping by for the first fifteen minutes that this session was very well attended, being that it was in a very large room and there were not enough chairs to accommodate all attendees.



I have heard from many sources that the All Sciences Poster Session was extremely well attended. The Virtual Session is available for viewing at the following URL, which includes titles and abstracts for each of the posters: <http://scitech.sla.org/all-sciences-2015-posters/>

Here is a listing of the Poster Session titles and authors:

Science literacy in the lab: research instruction in first year biology. Catherine Lantz, University of Illinois at Chicago.

Quantifying the benefits of providing electronic access to required course materials. Jim Martin and Niamh Wallace, University of Arizona Libraries.

Analysis of research data management instruction materials. Willow Dressel, Princeton University.

A case study: how publishers and discovery service vendors are collaborating to improve content-related process-

es. Ruth Wolfish, Jalyn Kelley, and Julie Zhu, IEEE.

Faculty assessment of journals. David Dror, University of Illinois at Chicago Library.

Collaborating and data mining to develop a dietary guidance collection. Christian James, National Agricultural Library.

How much!? Estimating the cost of an assignment in an organic chemistry class. John Kromer, Miami University.

Making an exhibition of yourself: reaching out and collaborating across your institution. Dorothy Barr, Harvard University.

Tagging subject guides, solid research, definite accept Your Key(tag) to success: a creative and customizable method to promote research guides. Martha Roseberry and Bettina Peacemaker, Virginia Commonwealth University.

A Scientometric study of research papers of IISER Bhopal (India) during 2009-2014. Dr. Sandeep Kumar Pathak, Indian Institute of Science Education and Research (IISER) Bhopal.

Helping engineering graduate students to become ethical engineering scholars. Susan Wainscott and Julie Longo, University of Nevada, Las Vegas.

Profiling common types of research data and methods published by organic synthetic chemists at the University of Michigan. Joanna Thielen and Ye Li, University of Michigan.

What do engineering faculty want from library services? Li Zhang, Mississippi State University.

Developing a research management and profile workshop series. Jennifer Hart, University of Chicago.

Mendeley user adoption and productivity between different disciplines, aca-

demical statuses, and varying support resources. Jennifer Chang, Elsevier/ Mendeley.

Chess for STEM at Rodgers Library: Development of both mind and discipline in studies at leisure. Mangala Krishnamurthy, University of Alabama.

Best practices of information architecture and website redesign for information professionals. J. Jasmine Chmiel, and Colleen Funkhouser, The Catholic University of America and Raymond Maxwell, Western Carolina University.

NIH Library visualizes activity with data to make changes to its physical space. Bradley Otterson and Ben Hope, NIH

Analysis of interlibrary loan data to identify the proliferation of open access material. Lutishoor Salisbury, University of Arkansas Libraries.

Winning the popularity contest: an examination of citation trends in civil engineering, computer science, mathematics and physics dissertations. Tina Franks and Daniel Dotson, Ohio State University.

Making chemistry liaison connections through grassroots efforts. (Tina) Na Qin, Michigan State University.

Paving the way to equal opportunity and social justice: what can information literacy do for special needs populations? Stan Trembach, University of South Carolina.

A study of citations to Wikipedia in open access and non-open access articles. Robert Tomaszewski, University College London.

NASA's Astrophysics Data System —new and improved: beyond classic. Donna Thompson, Smithsonian Astrophysical Observatory.

Mapping astronomy and astrophysics in Web of Science. Eva Isaksson, Helsinki

University.

Which Yu is you? ORCID for researchers. Louise Rubin, Harvard-Smithsonian Center for Astrophysics.

I would like to pay tribute to the generosity of our sponsors for the 2015 Science-Technology Awards and/or Programs, as shown in the chart below. I also want to sincerely thank Helen Josephine, our SciTech Vendor Relations Chair, for acquiring all of this great vendor support.

Vendor	Contact Person	Email	Event/Award	Amount
ASTM	George Zajdel	GZajdel@astm.org	Ann Koopman Achievement Award	1500
SPIE	Andy Wallis	andyw@spie.org	S. Kirk Cabeen Student Travel Award	1000
IEEE	Phyllis Buchta	p.buchta@ieee.org	Awards Reception	1000
Elsevier	Catherine Gold	C.Gold@elsevier.com	Awards Reception	1000
World Scientific	Ruth Zhou	ruth@wspc.com	Library Management Panel	1000
Annual Reviews	Anna Fleming	afleming@annualreviews.org	Bonnie Hilditch Award	500
McGraw-Hill	Molly Wyand	molly.wyand@mheducation.com	Science and Engineering 201	1000
CRC Press	Jill Reid	jill.reid@taylorandfrancis.com	All Science Poster Session	500

The Science-Technology Division has acquired the following four new members this year, two of which are from countries outside of the United States:

Nurhazman Abdul Aziz
Singapore

Kristin DeAnfrasio
Valencia,CA
USA

Projes Roy
Delhi
India

Thumy Webb
Honolulu, HI
USA

It's hard for me to believe that I only have one more column to write for SciTech News as Chair of the Science-Technology Division. I have really enjoyed my term so far and want to sincerely say "Thank You!" to everyone for making the 2015 SLA Annual Conference in Boston, MA, such a huge success!

First Timer Highlights of SLA 2015

by Tess Grynock (*S. Kirk Cabeen Travel Stipend Award recipient*)

In the eyes of this first timer, the Special Library Association Conference 2015 was an amazing learning and networking experience. The Science-Technology Division S. Kirk Cabeen Travel Stipend Award provided me with the means to attend SLA 2015, which in turn allowed me to meet numerous members of the SLA community and learn from their wealth of knowledge. Everyone I spoke with made me proud to be joining the diverse and knowledgeable field of librarianship.

SLA 2015 provided many opportunities to mingle and converse with other conference attendees. While traditional gatherings such as dinners and receptions elicited the exchange of several business cards during the conference, workshops and volunteering provided many chances to connect with fellow attendees. The workshops at the beginning of the conference not only provided a hands-on learning experience but also fostered networking through small group exercises. After participating in a workshop on data management plans, I was able to recognize and speak with the workshop participants throughout the rest of the conference who had a similar interest in data management. Although volunteering was not required as part of the award, it afforded many benefits and I would recommend the experience. Volunteering at the registration desk provided an excellent opportunity to meet conference attendees, speakers, and vendors. Volunteering also offered me a glimpse of the underpinnings of conference operations and a chance to work more closely with the SLA staff. During the course of the conference, talking to first timers and members that were within the first five years of their career was just as interesting as learning from the accumulated knowledge of the SLA Fellows. For example, I met an attendee who, within the first five years of their career, was the first librarian in their company and it was fascinating to discuss the challenges and benefits of such a position. At the end of each day, there were

always fun events to attend. I tried my hand at the trivia, but competing against librarians in trivia is difficult at the best of times, and is even trickier when librarians are composing the questions! I also put on my dancing shoes to attend the legendary IT dance party which I heard about throughout the conference, and it lived up to its reputation.

The S. Kirk Cabeen Award provided me with not only the financial resources to attend SLA 2015, but also the support and encouragement of the Sci-Tech Division throughout the conference. I felt welcomed at all the Sci-Tech events, from the Welcome Dinner and Awards Reception to the numerous sessions hosted by the division. Friends are equally as valuable during conferences as they are in life and I was fortunate to meet a friend early on in the conference. With so many great sessions happening simultaneously, it was much easier to discuss sessions I was not able to attend than try to catch a portion of every session.

While librarians are diverse in the roles they fill and the organizations that they support, they are still connected through their profession, and they share similar information management problems and solutions. SLA 2015 was not only an excellent networking event, but also an opportunity to learn novel solutions to challenges, both new and ongoing. Of all the sessions I attended, four come to the forefront of my mind. The quick-take sessions were enjoyable overall and allowed for a lot of information to be compressed into the fifteen minute time slot. The most memorable one for me was given by Talie Casucci on how librarians at the University of Utah are embracing technology and providing support for mobile technologies in medical teaching. SLA 2015 brought together many excellent speakers, and having multiple speakers per session allowed for a diversity of opinions. The session entitled "Get Out of Your Chair and Revolutionize Your Training Program!" challenged my as-

sumptions about having multiple speakers in a single session, since my past experience has been that smooth transitions can be difficult in a short timeframe. All three speakers were equally dynamic, and the transitions between their presentations were seamless. The speakers, who were presenting on communications strategies, lived up to their topic and ended the session by distributing candy with a small message attached, illustrating the use of tangible encouragements to help disseminate tips and increase visibility. Although all the speakers for that session were based out of law libraries, many of the strategies that they imparted could be incorporated into other settings. The session was one of many I stumbled upon that approached similar themes such as communication and data management from different perspectives. I am pleased that I was not yet experienced enough to discern what a session would be like simply by reading the description provided in the schedule; otherwise I may not have challenged myself to go beyond my "comfort zone" of science-based sessions. Data management played a prominent role in my session choices, and it was interesting to hear presentations from different fields that I would not have considered before. One such presentation was by Leighton Christenson, who discussed the

data management challenges facing members of the Transportation Division. His presentation has made me think about traffic information in a new light. However, not all of my session choices wandered too far from my background in science. The final highlight of the conference for me was the "All Sciences Poster Session," which illustrated the research that is arising from the library community. For someone like me with many questions, the poster session allowed for further discussions and closer examination of ongoing research and new techniques. I hope to apply some of the new skills and advice I have gained in my own career, and to collaborate with SLA members in the future.

In accordance with the theme of this year's conference, "Be Revolutionary", the S. Kirk Cabeen Award allowed me to improve my revolutionary skills. I learned new communication tactics, tips for overcoming obstacles, and found out more about what people want and need. The revolutionary ideas were supported by the people behind them and I learned a wealth of information from all the attendees. While I do not know which direction my career will take, the contacts and revolutionary ideas I gathered from SLA 2015 will provide assistance along the way. I am already looking forward to my next SLA conference experience.

First Timer Highlights of SLA 2015

by Waleed Al-Badi

(Diane K. Foster International Student Travel Award recipient)

I want to thank for choosing me for this award; attending the SLA Conference was a dream come for me, true thanks to you.

I have benefited a lot from attending this conference, which was full of scientific sessions and have benefited from research and studies and will take many of the ideas that help me and apply them to work as soon as I return. I have made a number of friendships with many of the specialists interested in libraries and information and benefited from

talking to them, identifying the ideas for the development of libraries and on daily challenges in the workplace. I will communicate with them in the coming months.

I have also benefited a lot from the exhibition accompanying the conference, where I got to know many of the companies and institutions working in the field and I got to know the most prominent products as well as be introduced to modern technology on trends for libraries and information centers.

We also visited some libraries in Boston and learned about the way in which they work and beneficiaries of their services.

The audience was left in the Conference SLA great impression and I will certainly be present again in future years.

Call for Survey Participation Science Technology Division (DST) Strategic Plan Revision

The Science Technology Division (DST) Strategic Planning Committee is gearing up for a revision of the current Division Strategic Plan, last revised in 2010. In addition to speaking to officers of the Division about your suggestions for our future, the committee is providing two additional ways to provide your opinions.

An online survey is open for your responses during the entire month of September, 2015. You may access the survey here: <https://www.surveymonkey.com/r/WV339KT> A link to the survey will also be sent to members of the SciTech Division who have an email address listed on their membership record, and to those subscribed to the SLADST discussion list. To verify that you are currently a member of the Science Technology Division, and that you have a current email address on file, you may log in to www.sla.org, click on my account, and update records to view your current division affiliations and contact information. To subscribe to the SLADST discussion list, send an email to lyris@sla.lyris.net. No subject line is necessary. Please do

not include any signature or formatted text in the message. The body of your message should read: Subscribe SLADST youremail_address FirstName LastName

The committee will analyze the survey results and then provide a summary and a copy of all survey responses received to the DST Board in January 2016. We will also offer a visioning discussion session during the 2016 SLA Annual Conference in Philadelphia PA to receive additional suggestions and comments from DST members and other interested parties. We plan to incorporate the information from the survey and the visioning session into a draft revision of the Division Strategic Plan for discussion at a Division Board meeting in late 2016. Please do take these opportunities to make your voice heard in this process.

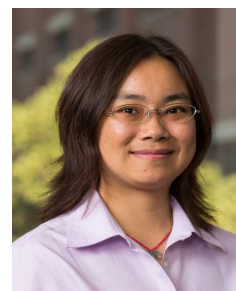
Susan Wainscott
Science, Technology, Engineering and Mathematics Librarian
University of Nevada, Las Vegas

News from the Chemistry Division

Chemistry Division

Ye Li, Chair

The Chemistry Division is concerned with chemistry and chemical technology, and the economics, educational advances, and information handling of developments in the field of chemistry and related subjects.



Greetings, dear colleagues! It was such a pleasure to meet many of you and enjoy the SLA Annual Conference at Boston together this past June. The SLA 2015 and [the programs hosted by the Chemistry Division](#) were very well attended and we have received many encouraging compliments and also constructive comments and suggestions. I would like to express my sincere appreciation for all the support and hard work



Hands-on Activities during the pre-conference workshop Chemistry for the Non-Chemist Librarian on June 12, 2015 (Left one: Judith Currano, instructor; Left two: Susan Cardinal, instructor; Photo Credit: Ted Baldwin)

of our conference planners, board members, volunteers, moderators, speakers, and all the attendees of our programs. Our events were made possible by the generous support from our sponsors, ACS Publications, RSC, Elsevier, CAS, and Thieme Chemistry. Our efforts together have made this gathering an unforgettable learning and sharing experience with a lot of fun.

Our pre-conference workshop Chemistry for the Non-Chemist Librarian and two CE courses (Chemical Information Sources, Requests, and Reference and Extreme Structure Searching) drew a total of 32 individuals and kicked off a great start for our conference.

Thanks to the leadership of our Professional Development Chair Ted Baldwin and the support of Erja Kajosalu from MIT, we were able to host all the three unique sessions in their full capacity this year. Feedbacks from attendees were overwhelmingly positive for these courses. These sessions taught by our respectful colleague Judith Currano, Susan Cardinal, Dawn French, and Denise Callihan truly demonstrated the unique and highly specialized support our division could provide to SLA members and our profession in general.

More than 35 members participated in the DCHE Newcomers' Dinner / Members' No-host Dinner on June 13. Because of the record-high attendance, we had to enjoy the wonderful Saturday evening at the Boston harbor in three groups. We also held our board meeting and business meeting, which focused on the discussions about the SLA Recommendation Report and our responses to the Report. The on-site discussions along with our communication through the listserv



Stacey Mantooth (Right) received Sparks Award on June 14, 2015 (Left: Tina Qin, DCHE Award Chair; Photo credit: Ted Baldwin)

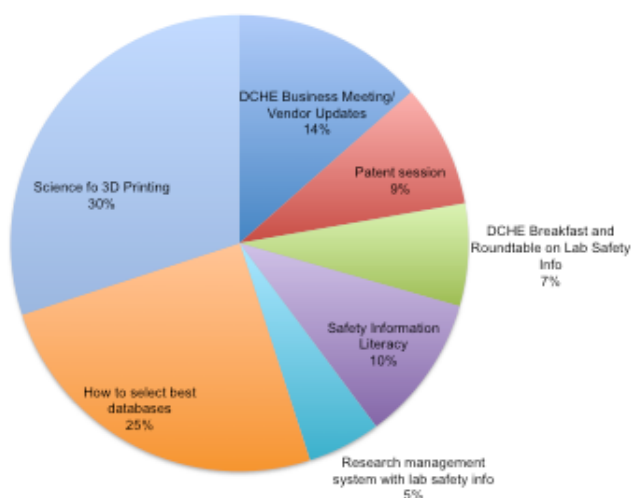
and individual communications had been summarized and shared with the SLA Board of Directors on June 23, 2015. Our members expressed our strong belief in the unique and vital role of DCHE to our profession and made many constructive suggestions for making positive changes in our association practices, especially the means to revolutionize our annual conference. During the Business Meeting, the DCHE 2015 Sparks Award was presented to Stacey Mantooth, a science librarian at Florida State University. Please look for Stacey's story about her first SLA experience in this SciTech News issue.



Grace Baysinger spoke during the session Exploring Safety Information Literacy: Towards a Safer Research Environment on June 15, 2015

sium with overviewing three different databases disseminating safety information and discussed our questions around the librarians' role in the safety information realm. The safety information literacy session provided us diverse perspectives of librarians, chemistry faculty, and environmental health and safety officers towards the safety information resources and education. The session on research management system integrating safety information demonstrated the potentials of how chemical information specialists could work with other stakeholders of this area to create good information systems and facilitate best practices in academic, corporate, as well as governmental sections.

Attendance Of DCHE Sessions
(Total Attendance: 482;
All Science Poster Session not counted)



Close to 500 people attended the DCHE programs. Our speakers generously shared the slides and handouts they used during DCHE sessions through our website <http://chemistry.sla.org/2015/slides-from-chemistry-division-sessions-at-sla-2015/>

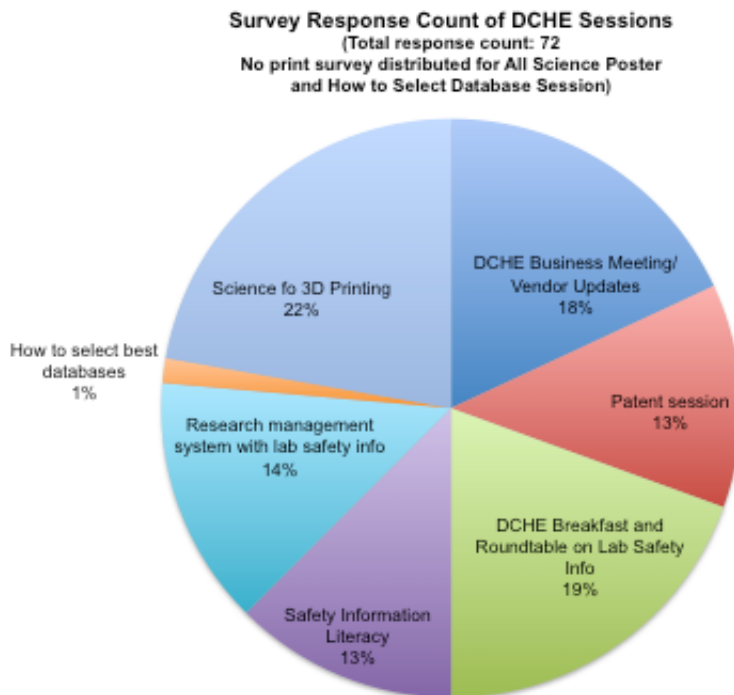
Together, we entertained updates from eight vendors of chemical information, explored patent management and database selection, and broadened our vision on 3D printing in the library. Most excitingly, we focused on the laboratory safety information together with our colleagues, members of Chemical Information Division from the American Chemical Society (ACS-CINF), in the bi-society symposium sessions. In the breakfast/roundtable session, we kicked off the one-day symposium



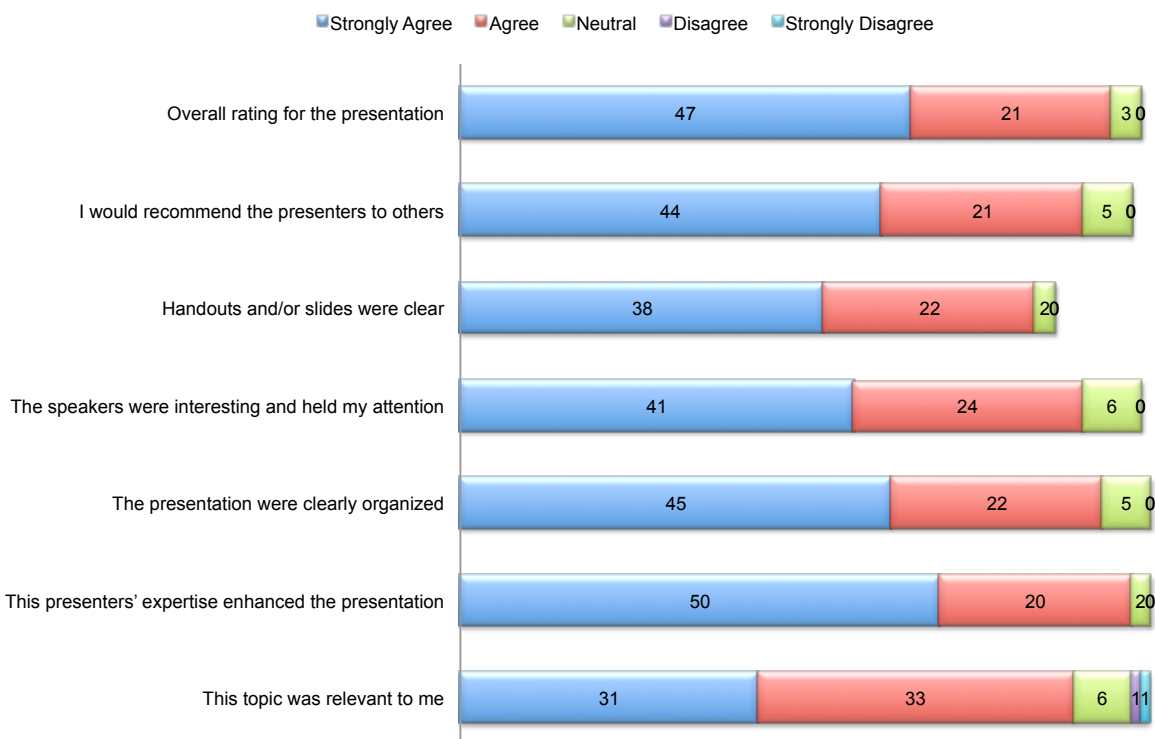
Members networking during the session DCHE Breakfast and Academic / Corporate Roundtable on Laboratory Safety Information and Practices on June 15, 2015 (Photo Credit: Ted Baldwin)

The bi-society symposium truly highlighted this crucial but often overwhelming topic and planted seeds for future collaborations among chemical information specialists, cheminformaticians, chemical safety professionals, and educators in Chemistry.

We collected 72 responses to our Session Evaluation Survey through print surveys distributed on-site and online. Summary of these responses are shared below and will be used to improve our future programming.



Ratings for DCHE Program Sessions - SLA 2015 Boston
(Total responses: 72, Total sessions evaluated: 7)



Additional Comments

Bi-society symposium on Lab Safety Information

great bi-society meeting!

Very nice. DuPont could have used lab examples.

Great job! Thanks for sharing very useful information.

I would like to see a KM approach and best practices for how to store and share lessons learned.

Excellent topic worth exploring further.

Future development to resources.

Could use more handouts

very timely topic and more case lab safety info studies would be great.

Thanks for a great services on lab safety!

What are others doing at their institutions? More time for discussion.

Not enough time for individual divisional programming. In fact, not enough programming PERIOD. The number of sessions has drastically dwindled. information on proper storage of laboratory chemicals First two presentations were particularly relevant for those in an academic environment (like myself). We don't have Reaxys and are not likely to get it, so that (3rd) presentation was not that helpful.

will be at next session.

good job!

Great having different professionals - librarian, scientist + EHS

I would like it to be clearer if/where the slides will be after the presentations,. Some went through presentations very quickly and I would like to review.

All were excellent.

Thanx!

Excellent variety of speakers, expertise, viewpoints! Best session I have been to yet!

Really helpful!

Patent Session

Speakers had too much (but great) info for the time allotted.

This was very information dense and could have used more handouts

Knowledgeable speakers

Very organized session - Thanks!

just ran on too long - especially at end of day!

AnaVist and Visualization, thesaurus usage in STN

I learned so much!

I was hoping this would cover How to find patents when you 're clueless &/or how to understand the heading lines in Chem Abstracts &/or how to determine which patent you want when your search ending up several w same name, inventor but different dates or numbers.

N/A

Thank you for a very informative session

DCHE Business Meeting / Vendors' Update

Everything was fairly brief. I would like to know more about the items that were free to academic institutions.

Some type of food or coffee may attract more attendance to the roundtable.

yay for not-ticketed!

Reaxys - I love the database and use it when working with chemistry related reference questions

I thought today was great! Thank you for putting it on .

Limiting the vendors to 5 minutes worked well.

so glad this was not a ticketed event this year! not really a roundtable; should be called a vendor update.

Would have been nice to have had an extra 20 min for business meeting AND an extra 30 min for Q/A of vendors.

Science of 3D Printing

Programs were very good and useful.

More about decision making for setup/management. uses in sciences, and use statistics/ where programs are going.

How is this presentation relevant to info pros?!

Designing and preparing files for 3D printing

Programming the printer for different models on scanning . e.g. how to model, make the file.

This session is one of the main reasons that I decided to attend the Boston conference.

Additional info on 3D printing and perhaps vendors.

Great.

How to select database

Very good but thought it would have been nice to have more relevant programming.

More chemistry-specific sessions to bring non-chemist librarians up to speed on new topics and resources to search for them.

Organizing DCHE programs for SLA 2015 in the past 19 month has been a fruitful learning experience for me. Our colleagues' dedication and hard work behind the scene are what truly strengthened our profession. I am very grateful for the opportunity to contribute to our division and would like to invite you to join us if you have not volunteered for our division work yet. Last, I would like to thank you all again for your participation and support to all DCHE events. Look forward to another joyful gathering at Philadelphia next June.

DCHE Membership Survey Update

The Chemistry Division has collected members' opinions and input on the current status and future of the division through our membership survey between June 15 – August 1, 2015. The current response rate is 42%. The DCHE Board would like to thank all

members for their contribution at this transition time for the association as a whole. The survey results will be summarized and used for the strategic planning of our division. More information will be provided in the next newsletter.

DCHE Welcomes New Members

(Joining dates between May 2015 - July 10, 2015)

Chuck Piotrowski
GE Global Research

Angela Hetrick
Student member

Zoe Pettway
California State University, Fullerton

SLA Annual Conference Report Back

by Stacey Mantooth (Marion E. Sparks Award recipient & Science Librarian, Florida State University)

As the Marion E. Sparks Award recipient for 2015, I was honored with the opportunity to attend this year's SLA Annual Conference in Boston, Massachusetts. The Chemistry division delivered a robust program of events that examined a wide range of topics in both causal and more formal settings.

Starting on Friday June 12th, a number of DCHE members arrived early to take advantage of the division's pre-conference offerings. The continuing education courses were well attended by corporate, academic, and government information professionals seeking to expand or refresh their chemical information expertise. The full day Chemistry for Non-Chemists class introduced foundational chemistry knowledge necessary for assisting researchers and gave examples of types of questions chemists in varying specialties would be likely to ask. Punctuated by hands-on experiments and activities, this course offered a depth of experience and customization that would be hard to find anywhere else. The half day courses--Chemical Information Sources, Request, and Reference and Extreme Structure Searching--covered the best resources and methods for meeting researcher needs and more advanced structure searching, respectively.

With more than thirty RSVPs for the Newcomers'/Members' No Host Dinner, the event was split between three restaurants on Boston's Waterfront. The event gave returning members a chance to greet familiar colleagues and treated new members to a great meal and even better conversation.

The Chemistry division Business Meeting and Vendor Roundtable opened a discussion to members' reactions to the strategic recommendations in the SLA consultants' report. All comments were noted for inclusion in

the division chair's report to the Board of Directors. Representatives from CAS, CRC Press, ACS Publications, Thieme, Cambridge Crystallographic Data Centre, and Altmetric closed the meeting with updates.

The Bi-Society Symposium on Laboratory safety co-hosted by ACS-CINF division featured a Breakfast and Corporate/Academic Roundtable, as well as sessions on safety information literacy and point of need delivery. Librarians, vendors, educators, and safety officers spoke about resources and experiences relevant to promoting a culture of safety and integrating essential safety practices and information into the research process.

Additional sessions from DCHE covered the topics of selecting the best databases for your community, 3D printing, and using patents to assist with new invention development. The first gave examples and overviews of a variety of methods to assess databases. The real take away though was that there is no single best database. Selection depends largely on understanding the needs of the target community. Science of 3D printing highlighted how this emerging technology has been put to use by academic and government libraries and the Cambridge Structural Database.

From the pre-conferences classes to the post-conference farewells, I always found an idea or contact or tool that I could take home to better serve my community. Even in this period of transformation for the SLA organization, the conference delivered invaluable learning and networking opportunities. I hope all the other newcomers had as exceptional experience as I did, and I look forward to SLA Annual Conference next year in Philadelphia.

2015 SLA Conference Report

by Jack Dale

After applying for the 2015 Sparks Award for Professional Development, I decided to deepen my involvement with SLA's Chemistry Division (DCHE) by volunteering to provide information via Twitter on the various meetings and presentations sponsored by the Division. In order to expand my professional range as an aspiring Reference Librarian I participated in the workshop on 'Chemical Information Sources, Requests, and Reference.' Immediately after signing up for this session, I remembered I hadn't even cracked a Chemistry book in many years, and realized I would be depending in this instance on knowledge that was at least a few decades old. Feelings of inadequacy continued to assail me as the date for the workshop approached, until I decided that the best I could do was to approach the whole experience from a beginner's perspective. However, given the knowledge and graciousness shown by our instructors (Ms. Currano and Ms. French), all my fears were wholly unnecessary in the end.

Armed with some basic knowledge on reference sources in the chemical sciences, access points for these same sources and related information, and strategies for conducting effective searches for chemical information, I decided to plunge deeper into the subject by attending a session titled 'The Next Great Invention: How to Help your Organization Make it a Reality.' Besides learning about the intricacies of the patent analysis and the patent searching process, I was reminded once again not only of the tremendous breadth and depth of knowledge required of a Reference Librarian in the chemical sciences, but also of the tremendous responsibility inherent in this position. Their information searching and patent research efforts inform not only the patent application process, but they also play a critical role on issues such as product development, intellectual property management, and the marketing of new products and ideas.

Information professionals working in the chemical sciences also play a significant part in supporting laboratory safety, as reflected in the presentations and discussions held during the 'Academic/ Corporate Roundtable on Laboratory Safety.' This session was sponsored by the Chemistry Division and it was conducted along with the DCHE Breakfast, a great opportunity to begin the day with a tasty meal while making new friends and potential colleagues. As I was made aware of the responsibility Librarians share with others in promoting and ensuring laboratory safety, I thought about how this emphasis on laboratory safety and the need to familiarize users with best practices concerning this issue reminded me of similar efforts in promoting Literacy in all its myriad forms, a task familiar to all librarians and information professionals regardless of specialization or work environment.

Finally, and in an effort to satisfy my growing curiosity about the subject, I decided to attend a Master Class session titled 'Science of 3D Printing.' Co-sponsored by the DCHE, this session demonstrated the future potential held by this and associated technologies (such as Material Science). In addition, this presentation helped me to understand the role that libraries and librarians can play not only on popularizing 3D printing, but in ensuring that this technology lives up to its fullest potential. I am now aware of the high standards and the heavy responsibility inherent in becoming a reference librarian in the chemical sciences. I feel my success will be assured by virtue of my association with the consummate, dedicated professionals of the DCHE.

Sessions/ presentations referenced in this report:

- CE Course: Chemical Information Sources, Requests and Reference
Saturday, June 13, 8:00 a.m.
- The Next Great Invention: How to Help

your Organization Make it a Reality

Sunday, June 14, 3:30 p.m.

- DCHE Breakfast and Academic/ Corporate Roundtable on Laboratory Safety Information

Monday, June 15, 7:30 a.m.

- Science of 3D Printing (Master Class session)

Tuesday, June 16, 2:00 p.m.

News from the Engineering Division

Engineering Division

Sara Davis, Chair

The objectives of the Engineering Division are to provide an association for those having an interest in library and information science as they apply to engineering and the physical sciences and to promote the use of materials and knowledge for the benefit of libraries and other educational organizations.

Hello, everyone! So much has happened since the last time I wrote! The big news is that we visited Boston and from what I hear, everyone came away full of both information and their favorite seafood dish! Reports on the various Division events are here as well as in articles from our Section Chairs, Mary Whittaker and Kati Arzeta. Please take a few moments and read thru what happened at all of our Division events in Boston.

In addition, I'm sure you have been following the events regarding the future of our organization. If you haven't had an opportunity to see what is happening, please read thru what happened at the last SLA Board meeting at this link: <http://www.sla.org/governance/board-of-directors/mtg-info/>.

My deepest thanks to Penny Sympson, Mary Whittaker and Kati Arzeta for providing our Division members such well thought out programs that allowed our Division members to go back home and share what they learned with their colleagues, both at work and at local SLA events.

The Division opened the Boston conference with our monthly Board meeting. There were 17 of your Board and Advisory Council members in attendance and for more information on what was discussed or voted on, please refer to our Division meeting minutes at this link: <http://engineering.sla.org/about-the-division/meeting-minutes/>

On Saturday, June 13, the Division held its first ever no-host dinner. There were 17 of us who gathered at Salvatore's Italian restaurant for some excellent Italian food and great conversation. The niceties were quickly dispatched and conversation got round to topics like: how do you handle...; what do you do about...; what's the latest on..., etc. When I looked down the tables to see how

things were going, I saw lots of empty plates (good food) and lots of animation on each face (good conversation) with hands waving in good Italian tradition! Here's to another dinner next year!

Reports from Division sponsored sessions in Boston

STANDARDS UPDATE – 6/16/15 -- SDOs working together for future.

by Karen Kreizman Reczek and Sabina D. Tannenbaum

1. SAE International, Michael Thompson. SAE's main focus is automotive and aerospace. Its digital library platform provides an enterprise solution for aerospace and ground standards and technical papers. Subsets are available based on topic. Additional customization is available. For example, your library may buy a package permitting a quantity of individual downloads, say 25. SAE is converting documents to XML format for future machine to machine interface and for the convenience of the user. SAE has acquired access to aerospace content from partner providers, most recently, ADS (aerospace and defense standards in the UK). Coming soon, the 4 major discovery services will include access to SAE documents, standards watch will be included in the digital library, improvements will be made to the search engine and administrative portal, and a pilot with the University of Michigan will be offering standards in the classroom. SAE is interested in beta testers for the new administrative portal. Here is the link to the SAE Digital Library brochure: http://saedigitallibrary.org/data/uploads/p150244_2015_digital_library_brochure_web.pdf

2. CSA, Patti Ensor (Susan Morley retiring

end of Dec.). The Canadian Standards Association, established in 1919, publishes over 3000 standards in 54 subject areas. COIs (communities of interest) were introduced in 2013, providing opportunities for the collaboration of stakeholders, standards users, and subject experts in 8 main areas plus many more. Available probably this fall are redline versions, initially via Techstreet. The National Electrical Code update is due in January. Just issued are Z662-15, *Oil and Gas Pipeline Systems* and the B149-15 gas code package, expected in August. CSA does not offer IBR (Incorporated by Reference) "view access." The electrical code is now offered in interactive mode, as are B149 and Z662. Online training is being improved and is available internationally. Sign up to receive CSA newsletters in your areas of interest at <http://shopcsa.ca>.

3. ASME, Michael Rovins ASME is offering training online, in person in your company, and in public courses. It is partnering with aggregators such as IHS and SAI to offer assessment-based courses (ABC). ASME ZABC19 is a new, e-learning course on how standards are developed. ASME is investing heavily in conferences. In August, the 2015 Additive Manufacturing + 3D Printing Conference & Expo (AM3D) will take place. ASME's biggest product, the *Boiler and Pressure Vessel Code* (BPVC) will ship in July. It is now revised on a 2 year-cycle and the addenda have been eliminated. Three new journals have been introduced: *Nuclear Engineering & Radiation Science*, *Risk and Uncertainty in Risk Engineering, Part B*. Part A is produced by ASTM and ASCE. There are 140 e-books available. ASME will soon unbundle the book package and allow customizing orders to the chapter and page level. New ASME Press books are being offered in multiple languages, including Spanish, Chinese, and Portuguese.
4. SAI Global, Stuart Bowyer. SAI Global's new platform is known as, i2i, which stands for "information to intelligence."

The main platform makes available standards from 340 national and international publishers. With the new elastic, free-form search interface, clients can have a Google-like search experience and create alerts. The i2i Gap Analysis tool provides a way to identify changes in the standard and manage compliance and risk assessment. The i2i Participate tool enables the client to load and manage their own content. SAI Global's new streamlined business division focuses on training, governance, risk management, and compliance for new products, providing more updates to partners and clients, and creating value around the standards.

5. ASTM, John Pace. New at ASTM: Portal platform (ASTM Compass) combined with new branding of the corporate Web site. ASTM Compass provides instant access to standards, testing, learning, and more. Features include pdf or html, advanced notes, and redline. Soon you will have the ability to obtain the current version of a standard and see any previous revision for comparisons. Taxonomy has been enhanced to improve discoverability. With search capabilities in eight languages, Compass is being pushed into academic marketplaces around the world, including Turkey, Germany, Japan, and French Canada. ASTM is running an XML hardening exercise to make sure data tags are compatible with the JATS schema. JATS is being formalized as an ISO standard. It will be nice to see standardization coming into the world of standards! Employing JATS will enhance the experience of using metadata for text and data mining and improve interoperability of standards data. Compass is moving to a collaboration model for corporate publishers to make their own standards, offering tools to manage change and version control, to create internal work groups whose members can add notes to standards the group is working with, with the notes identified by name and timestamp for all group members to see. Training and e-learning, backed by LMS (learning management system), has a feature that enables su-

pervisors to see which employees are making progress on taking course modules. ASTM is in the midst of relaunching the lab directory.

6. ASCE, William Nara. ASCE makes available about 70 standards through both the ASCE Library and aggregators. ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, is on a six-year review cycle, with the new edition expected in June 2016. Changes are being made to the seismic provisions and a new section is being added on tsunami loads. Advances in technology are impacting what ASCE does in publishing. It requires finding the right partners and figuring out what features add value. ASCE is looking at making standards IBR viewable. Next year, ASCE will be developing its own standards platform utilizing XML, starting with ASCE 7. Commentary will be included on the right side of the screen, with the text of code on left. Date-stamped redlining will be offered soon. It will have a collaboration function with individual and corporate-wide notes fields. Additional material will be included for practical use. Wind load, for example, links to 3rd parties for GPS for wind load data, enabling one to make design modifications to a structure as necessary. ASCE SEI 31-14, *Seismic Evaluation of Existing Buildings* will be out soon. This year, fillable forms for screening check lists that appear in a standard are introduced. ASCE/COPRI 61 2014, *Seismic Design of Piers and Wharves* was issued this year, as well as a new edition of ASCE/SEI 37-14, *Design Loads on Structures During Construction*. New water resources and hail suppression standards for agricultural concerns have been issued.
7. Document Center, Claudia Bach. Document Center, a standards aggregator, was established 1982, and acquired by Claudia Bach in 1985. What's new: almost everything! Ms. Bach has been conferred the title of fellow by the Society for Standards Professionals (SES). The company launched Standards Online Subscription Service last year, a database of multi-user, licensable, custom-selected standards. Early this year, Document Center completed the first major upgrade to the search platform. Document Center offers a new approach to the standards market with features that make the company stand out among similar firms, for example, becoming compliance oriented with a suite of support services including auditing, monitoring, reporting, and current awareness products. What makes Document Center's system different? Expertise. Document Center offers these services: Standards Audit (review of your documents for missing parts or revisions), StandardsAlert (nightly search for changes), StandardsExpress (standing order service), StandardsReporter (quarterly spreadsheet of monitored standards), and StandardsInformer (current awareness by business sector classifications). Now there are links to external Web sites, such as to lists of harmonized standards so that you know which are applicable and which are not. Document Center keeps users up-to-date with forums and blogs. Document Center's work focuses on compliance. Go to <http://demo.document-center.com> for a demo.
8. IEEE, Michael Spada and Anasthasie Sainvilus. IEEE C2, *National Electrical Safety Code* (NESC) preprint is due out in August, 2016, and its final version in early 2017. The NESC is 100 years old. In the area of health care, IEEE is working with Health Level Seven International (HL7) to create standards that harmonize medical devices used by hospitals and other healthcare organizations. For standards education, IEEE holds a conference every two years with the next one set for October in the Silicon Valley. IEEE has published several vision documents, particularly in the field of smart grid research. The latest IEEE Std 1264, *Guide for Animal Deterrents for Electric Power Supply Substations* was introduced in June with a humorous cartoon video (http://standards.ieee.org/news/2015/ieee_1264.html).

IEEEExplore is celebrating 15 years! Conversion of documents to HTML is expected by end of 2016, including formatting for mobile devices. Off-campus remote-access is now available for activation by sending an e-mail to support@ieee.org. The Society of Motion Picture and Television Engineers (SMPTE) is a new publisher-partner that will make available SMPTE journal articles, conference proceedings, and standards back to 1916 by end of 2015. There has been a major overhaul of the e-learning library with courses on cloud computing, transportation, smart grid, wireless technology, over 400 courses in all, now seamlessly available via IEEEExplore. As a promotion, five courses are available for free. Ask for a free trial.

9. IHS, Steve Noth. IHS is a full service provider of standards at <http://global.ihs.com> offering from single purchases as needed to a broad enterprise subscription from 370 SDOs worldwide. Usage reports by customer are available to administrators, 3D models for standards online are being incorporated, and document previews are offered for documents not part of a subscription. Administrators can now add documents to a subscription collection on the fly via custom selections or blocks for purchase. Monitoring tools are improved with the capability to set up alerts not only for when updates are made to known standards but also for daily or monthly notification of new standards just coming out. The layout of the alerts page has been changed, providing a summary of the kind of changes with redline availability. Expanded document highlighting in the full-text shows relevant changes. Content is expanding with a portfolio of new publications, new packages of ISO and DIN standards and complementary materials data. The Boiler Code has a new stress table model. Expanded service is to include internal corporate standards for distributing to the supply chain to help in-house standards management. IHS is moving to an Engineering 360 platform as a destination for engineers with infor-

mation, insight, tools, community, discussions with over 400 people, editorial staff will feed content, and free service. Its knowledge collection will contain technical books, authoritative journal articles, and patents in one system, overlain with a semantic search engine, allowing users to dive into content in a new way. This product represents a major technology shift, an engineering workbench or single platform for all content, discoverable via semantic search engine with the speed and accuracy of a traditional search, supporting XML delivery, combining internal and external sources of information, and advanced, decision-making tools, plus support for mobile users. Five languages will be available at the summary level. Participating publishers include Wiley, ASTM, and others.

10. ANSI, George Gulla. ANSI is the official U.S. representative to ISO, IEC, and other international standards bodies. ANSI accredits standards development, is a member-based organization comprising government agencies, SDOs, companies, academics, and international bodies. ANSI's new subscription platform, Standards Connect, provides access to active and historical standards from ISO, IEC, and 145 other domestic and international SDOs. Features include advanced search, autocomplete, fuzzy logic, seamless access to the Webstore (<http://webstore.ansi.org>), watch lists, and favorites. For administrators, there is a module to create a modified dashboard. Administrators can keep an eye on search terms that users employ. It is mobile compatible. ANSI offers a university outreach program to enable professors to introduce certain standards to the classroom during the semester. There is free online education on standards and conformity assessment at www.standardslearn.org. For white papers and research on the value of standards, go to www.standardsboost-business.org.
11. API Theresa Ambrosius. API's first standard appeared in 1923. Now there are

600 active energy-related, ANSI accredited standards and environmental reports. Subscription products include data books and 100 new, revised, or translated standards. API Bulletin 100-3 2014, *Community Engagement Guidelines* is a standard that supports community acceptance of onshore oil and gas projects and fracking. As rail is important for moving fuel, API RP 3000 2014, *Classifying and Loading Crude Oil into Rail Tank Cars* was developed. There are new API standards for management systems, safety management systems, and product life cycle management requirements. API has developed a global standards strategy by broadening participation in standards organizations internationally, and is involved with a multi-year plan to provide for development of a single set of oil and gas standards. This international project requires identifying stakeholders, affected regions, and relevant industry relationships – MOUs (memoranda of understanding), translation agreements, and distribution systems. There is a new global social media campaign. API Global-Pro now has over 500 members. API is reaching out via LinkedIn, Twitter, and Facebook. Like Ms. Bach, Ms. Ambrosius is an active member of the SES.

12. Thompson Reuters Techstreet, Todd Fegan. Techstreet is focusing on new tools and content. It is addressing piracy and fraud issues on the e-commerce side of the business, and the black market for standards. FileOpen and DRM have been creating download issues for customers so Techstreet is working on simplifying how FileOpen is used, downloaded, and installed. Techstreet added new data elements for units of measure as a searchable field. Techstreet has improved the way to purchase single copies and simplified pricing. New features include a note-taking capability and links to external sources. There are 26 new agreements in place for new content, including EEI, AWI, AWC, SEI, AORN, NSC, ISTA, ASHE, and NADCA. Print-plus-pdf pricing has been added for some publications. NEMA

standards will become available via the subscription product in July. Next year Techstreet will focus on how people interact with data. Techstreet is also incorporating an app for navigating and interacting on tablet.

13. FM Global, Gary Keith. FM Global is making its first appearance at SLA Standards Update. It is a \$10B worldwide mutual property insurance company. It offers property conservation data sheets. Its business revenue comes from property insurance. Standards are a side product of the business and are given away. FM Global participates with other SDOs because its datasheets are valuable to NFPA and relevant to other organizations' products. FM Global does not employ actuaries, rather it's an engineering based organization. Its expertise is developed through R&D, turning information into datasheets for use primarily in the field, but also for other interested parties. FM Global attempts to influence SDOs with the information in the datasheets. It allows external input into their standards but will not turn data sheet development into an open consensus process. FM Global utilizes support teams across the company, including accountants, underwriters, engineers, and researchers. Some subjects covered are fire protection, turbine generators for manufacturing, and building construction (roof). FM Approvals is an ANSI affiliated organization.

How to select the best databases for your community: proven methods for comparison

by Laura Woods

On the Tuesday morning of the conference, Giovanna Badia gave a comprehensive and entertaining overview of methods for comparing databases for your community. Giovanna is a knowledgeable speaker with evident passion for her topic, which really shone through in



her talk.

Giovanna began by noting that there is no one database that covers everything you'll need, so it may feel pointless to make comparisons at all. She explained that comparing databases allows you to make accurate, informed decisions on buying or cancelling sources. It also provides guidance as to which database is best to use for reference support or for training and demonstrations – we usually have limited time for these activities, so it is important to know you're using the best tool for the purpose.

Giovanna outlined three main methods for comparing databases: journal lists, citation analysis, and sample references. All three methods have their strengths and weaknesses: which one you choose will be down to what exactly you want to find out, and how much time you have available to make the comparison.

Journal lists are the quickest method. You simply take the lists of journals provided by the database supplier, and do a like-for-like comparison across each list. You can also use the [Academic Database Assessment Tool](#) to assist with this process. However, this doesn't take into account depth of coverage.

The second method, citation analysis, is far more time consuming but will give you a much fuller picture of the coverage of each database. To start with, pick four to five core journals in your subject, examine the references cited in these journals and create a list of all cited journal titles, and use this list to check how many are indexed in the databases you are comparing. This approach allows you not only to determine the coverage of key journals, but also to ask more detailed questions such as which database indexes the most journal titles or the most items from those journals, and which goes furthest back in time.

The final method, sample references, is a more targeted approach to comparing the indexing of specific journals from within the literature. You could choose sample refer-

ences to search by picking them from systematic reviews on a key topic in your field, or select from work cited by a specific researcher, e.g. a member of staff at your own organization. You can then use these references as test searches on the databases you are comparing.

Giovanna went on to note that content is only one factor to consider when comparing databases. You will also need to know about database performance, such as recall and precision, which can be tested with known-item searches or topic searches. Finally, you will want to assess the functionality of the database. It can be useful to create a checklist of features that are important to you and your community. This could include any of the following or more: access and search options, methods for exporting and saving results, quality of customer support, availability of usage statistics, etc.

To wrap up, Giovanna reminded us that there most likely won't be one clear winner in any database comparison. As she had noted at the start, there is no one best database for any subject (wouldn't we all save time and money if there were...), so it's important to weigh the pros and cons of each database carefully and consider their ultimate purpose.

Giovanna has created a three-minute summary of the key points from her session, which is available on YouTube: <https://youtu.be/1iJ-IxnyWM0>.

Nanotechnology: What's the Big Deal, June 16, 2015
by Donna Beck

Massachusetts Institute of Technology (MIT) Professor of Aeronautics and Astronautics, Dr. Brian Wardle presented some of the ins and outs of nanotechnology. We were fortunate to receive practically a whole course packed in one hour about this rapidly changing field of research.

Beyond the already well-funded graphene industry, research at the nanoscale level is

ramping up in many locations, with plans at MIT to devote prime space for a new lab building. MIT is also a part of the Institute for Soldier Nanotechnologies. In addition to military interests, Dr. Wardle mentioned applications in many market areas, for instance, Nanocomp Technologies and their work in carbon nanotube (CNTs) fibers with commercial uses that could replace metals. At Wake Forest University, nanoparticles burn out brain cancer. Plus, Wardle's own collaboration with Metis Design for a "nano-stitch" method advances ice protection systems for airplanes.

According to Dr. Wardle, to get nanomaterials to scale over large objects can be "quite a trick." To understand dimensions so super small, he referred to ways to envision classification of nanomaterials: a nanofiber like the hair on the antenna of an ant. Advanced materials are studied because we want materials that are "stiff, strong, and light." The figures on some of the presentation slides were from Ashby's book, *Nanomaterials, Nanotechnologies and Design*.

Wardle provided detailed explanations about shapes at the nanoscale: nanotubes are hollow nanofibers; something could be catalytic at the nanoscale but not at the microscale. His passion, as he says, to make good nano-engineering even better, to make advanced materials more advanced, was evident throughout his talk. He declares a "bright future for nanocomposites." As an example, carbon fiber composites were used to build the Boeing 787, "Dreamliner."

Smaller materials may be less susceptible to inertial effects but at some point, below .1 nanometers, strength can hit bottom. Wardle's research group studies the ways nanofibers reinforce polymers to make them stronger. He explained that not all carbon nanotubes are the same, assemblies of many fibers can be grown at the same time, creating forests, 100 billion fibers on 1 square centimeter. A further understanding of nanostructure is necessary, as Dr. Wardle's explains that the "morphology of the surface area is important." Check out the open ac-

cess paper that he co-authored, "The Evolution of Carbon Nanotube Network Structure in Unidirectional Nanocomposites Resolved by Quantitative Electron Tomography," *ACS Nano*, 2015, 9 (6), pp 6050-6058.

New and fascinating developments by Wardle and his MIT team include manufacturing a CNT film that could fabricate the composite itself and "get rid of the oven"—technologies for making airplanes in a more economical, energy efficient way. See: Lee, J. et al., "Aligned Carbon Nanotube Film Enables Thermally Induced State Transformations in Layered Polymeric Materials," *ACS Applied Materials and Interfaces*, 2015, 7 (16), pp 8900-8905.

Other references were part of the slides, demonstrating that published research is not exclusive to aerospace specific journals and included articles from *Composites Science and Technology*, *Journal of Micromechanical Systems (JMEMS)*, and *Small*. Prof. Wardle left us on a fun note: nanobliss.com—art and images made from carbon nanotubes.

FM Global Facility tour

by Sara Davis

7:15 a.m. on Wednesday, June 17 saw 13 SLA members board a bus to travel to the FM Global Research Campus in West Glocester, Rhode Island. While it appeared that we were driving to the ends of the earth to get there, when we turned the corner and entered the front gate to the campus, it was clear that we had arrived at a world class research facility. We were met at the visitor center by an FM engineer who would be our tour guide for the morning who informed us that we were the last tour of the spring season; there would be no more tours until sometime in the fall. After breakfast, a safety video and the donning of hard hats and safety glasses, we were off to the Fire Technology Lab to watch a real life demonstration and testing of a fire in a warehouse and what happens with the sprinkler system that is in force for that warehouse. FM Global recreates the scenario of what would happen if a fire breaks out and how long it would

take the sprinkler system that is currently there to actually put out the fire. The test that we watched was a failure even though it appeared to the naked eye that the fire had been extinguished. Watching on the infrared monitor though showed that the fire was still raging as hot as ever at the bottom of the warehouse rack, where the water did not reach as much or as quickly as needed.

Then we were off to the Natural Hazards Lab and unfortunately, this writer's feet had given out so I did not actually witness what happened at that Lab. What I did hear from the folks that were there was...cool!

The last part of the tour took place outside the Visitor Center and that was a dust explosion. Using only a hard hat full of dust, the explosion was set off under controlled circumstances but the resulting fireball and dust cloud were very impressive. That small

amount of dust created a dust cloud that appeared more than 5 stories high and continued to dissipate over the countryside long after the group headed back to the Visitor Center.

Thanks to our hosts at FM Global Research Lab for sharing how they continue to help make our world a safer place to work.

Hope you enjoyed these reports and are already making plans for attending next year's annual SLA conference in Philadelphia. I hope to see you there!

Until next time,
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Engineering Division Awards Report

The Engineering Division was pleased to present the following awards during the Engineering Division Luncheon & Business Meeting, held Monday June 15 in Boston, MA.

Daureen Nesdill is the 2015 SLA Engineering Librarian of the year. The \$1500 award is sponsored by I.H.S, highlighting the accomplishments and contributions of SLA Engineering Division members to the engineering librarian profession.

Daureen Nesdill started her career in 1975 as a laboratory animal specialist at the Bersen Research Lab, Bronx Veterans Administration Medical Center (Bronx VAMC) after graduating from SUNY Downstate with a degree in Biology/Laboratory Animal Science. Her supervisor was Rosalind S. Yalow, Nobel Laureate in Physiology and Medicine, 1977. Allergies to lab animals forced Daureen to change her career plans and pursue a graduate degree in animal behavior and chemical ecology from Auburn University,

Auburn AL. The graduate assistant position at Auburn University's library helped pay her way through graduate school, but also convinced Daureen to peruse a career in library science. Daureen graduated from the School of Library and Information Studies, University of Alabama, Tuscaloosa in 2001. After a brief stint working at the Rodgers Engineering Library, Daureen moved west to accept a position as science and engineering librarian at the J. Willard Marriott Library, University of Utah.

Daureen was named Interim Head of the Science and Engineering Library in 2005 and held this position until after the reorganization of library personnel in 2009. At that time she became Marriott Library's first Data Curation Librarian. In this position Daureen led a team in evaluating the needs and resources available to both library and campus for initiating a research data management program. As a result Daureen teaches workshops in data management, develops library guides, educates librarians, informs the cam-



Photo: Daureen Nesdill and Kevin Hearn (I H S)

pus of changing federal policies, and assists researchers with writing data management plans and locating appropriate data repositories. Daureen also initiated a program to introduce electronic lab notebooks, ELNs to researchers. Daureen had been introduced to ELNS during a session at the 2008 SLA Conference. She has also been promoting ELN use to librarians and working with ELN vendors to improve their products.

Daureen juggles her duties as Data Curation Librarian with those of the subject liaison to the University's Department of Civil & Environmental Engineering and the Department of Chemistry. She also judges the Salt Lake Valley Science and Engineering Fair and is the librarian for the College of Science ACCESS program. This 22 year-old program introduces high school girls to careers in STEM. One of the projects Daureen is most proud to be involved with is TRAIL (Technical Report Archive and Image Library). The goal of TRAIL is to digitize federal technical reports and make them freely accessible. Daureen has been a member since 2007 and was involved in the initial development of the project. Eventually she became coordinator of the Communications Working Group and now is Treasurer of the project. She also promotes TRAIL to SLA members. TRAIL has made over 40,000 technical reports freely

available and will be celebrating its tenth year in 2016.

Daureen became a member of SLA while a library student. After graduation she became active in the Engineering Division as the Liaison to ASEE-ELD. This led to being elected Chair of the Division in 2007. For the 2008 SLA Conference Daureen organized a mini-symposium with the Chemistry Division on Cyberinfrastructure. Since then Daureen has served on the Engineering Division Board in various capacities, Secretary, Membership and Professional Development Chair, Alignment Ambassador, etc.

Daureen has also served SLA as a member and Chair of the Bylaws Committee. In her spare time, Daureen enjoys reading, listening to jazz, playing board games with friends and traveling. After attending SLA Conferences she remains a few days to explore the city.

Gabriele (Gabi) Hysong is the winner of the IEEE Continuing Education Stipend. Gabi is the senior librarian for Rolls-Royce, located in Indianapolis, Indiana. After receiving her MLS in August, 2006, Gabi was hired by Rolls-Royce in December, 2006. Originally planning on becoming a medical librarian, most of Gabi's graduate coursework revolved around that goal; however Rolls-Royce made an offer Gabi could not refuse.

Gabi changed careers, having received her undergraduate degree in Environmental Science and working in that field for 10 years. Those were interesting and enjoyable years, but she felt something was missing. Soon thereafter, she had an epiphany and decided to quit her job, sell her house, and become a full-time graduate student in the MLS program at Indiana University.

As a solo librarian, Gabi manages collection development, budget, training, copyright, research, marketing, knowledge management, training and anything else that requires the input of an information operative. Since she is the current 2015 Chair-elect for the Aerospace Section, she feels she has big

shoes to fill!

Gabi's hobbies and interests include, kayaking, archery, microscopy, architecture, photography, small space gardening, visiting the deserts of the US southwest, reading non-

fiction, collecting artwork.

A post award requirement is to write an article to be published in SciTech News about the award recipient's conference experience. Here is Gabi's article:

Reflections on the Annual Conference by the IEEE Continuing Education Stipend Winner *by Gabi Hysong*



The conference not only met, but exceeded my expectations—the networking, the vendors, the sessions, the speakers, Boston—all of it!

The opening session speaker, Leigh Gallagher, and her praise of librarians is something every executive needs to hear, especially when decisions are being made about the viability of libraries and librarians in the 21st century. Her inspiring comments set the tone for a dynamic conference.

As with any conference, there were several concurrent sessions that I had wanted to attend, but unfortunately I had to choose between sessions, a which always leaves me wondering if I made the right choice. A conference session very useful to my work was "Ready, Fire, Aim: The essential steps before a knowledge management initiative." Learning how other libraries and organizations work through their knowledge management (KM) initiatives gave me more ideas and confirmed that I was on the right path with my efforts at my company. Since I am a member of our company's KM steering committee, I also attended the session, "Designing Aggregation and Knowledge Management Sharing Systems." The crescendo session, "New Roles for Librarians and Info Pros" was a good introduction to the competitive intelligence functions as CI activities are a new undertaking as I grow beyond my traditional librarianship duties. As an aero-

space librarian I found the "NASA Spinoffs: To Space and Back" very enlightening. I had not known about these spinoffs or the work they were doing.

"Communicating Value through Strategic Alignment", the CE course that I attended, gave me valuable tools and a laundry list of ideas that I will use to communicate my library's value to the C-suite. Libraries, all too often are viewed as overhead or as a cost center, not a profit making entity. This means that we as librarians have to learn how to monetize our benefits. Learning to communicate this to the C-suite should be one of the top priorities of corporate librarians. Senior executives do not necessarily use the services of librarians as often as those who report to those executives. Thus, it becomes imperative that the information center's benefits be communicated monetarily. From this course I learned that the first step is to segment your market. In a large corporation, a library with limited resources cannot serve everyone equally. Who should be served and how should those services be implemented? Once you've identified your market segments, you then can determine the types of products and services you will offer these different groups. Some groups need access to academic and scientific journals while others require competitive intelligence resources. Completing a value statement and value proposition clarifies a library's impact and demonstrates its value to its customers. I have begun this process in my library and know this will enhance my library's position within the company.

As a side note, since I had waited too long to register for the aforementioned course, it was not on my agenda; however, on Saturday, I went to the convention center and spoke with the instructor. She was very amenable to my last minute attendance. I hurried back to the registration desk to register and pay for the CE course. I am thankful I did not take the original "course is full" as an answer. It is always worthwhile to the instructor and see if there is space in the class.

I was very fortunate that with the generosity of IEEE and the Engineering Division, I was able to accept the IEEE Continuing Education award and stipend during the IEEE breakfast. I was a speaker in the Solo Division's, "If you pin it, bake it, caffeinate it or craft it, they will come: Solo success stories" that was concurrent with the Engineering Luncheon, where awards are normally pre-

sented. I am truly thankful that IEEE and the Engineering Division were flexible and presented the award during the IEEE breakfast.

Throughout the years, as I grow in my career as an information professional, from newly minted librarian in 2006, I find the annual SLA conferences becoming more indispensable to me due to session content, vendor contacts, best practices and training. I appreciate the dedication of all of those who make these annual conferences happen!

SLA 2015 Conference Report

by Laura Woods (Bonnie Hilditch Award recipient)

As a newcomer to engineering librarianship - I took up my current role as Engineering Librarian at the University of Huddersfield in October 2014 - I wanted to learn as much as I could about this sector of librarianship. I have been a member of SLA since 2009, and have always found it a valuable source of professional advice and inspiration, so joining the Engineering division of SLA was the obvious first step for me.

When I saw the call for applications for the Bonnie Hilditch award, I jumped at the chance. I am lucky enough to have been able to attend the conference previously, with sponsorship from SLA Europe and the Legal Division, and I remembered how beneficial it had been for my professional and personal development. I was delighted to be selected as recipient of this award, and determined to make the most out of it.

I am incredibly grateful to the Engineering and Sci-Tech divisions for the opportunity to

attend the conference. I had a very inspiring few days, and learned a great deal - probably too much to fit into one article! I have shared some of my conference highlights below.

The people

Meeting new people and making new connections has always been the main benefit of my SLA membership, and this conference was no exception. It was great to meet so many talented and passionate librarians, especially those within my newly adopted divisions!

The networking opportunities were fantastic - it was wonderful to share dinner with the Sci-Tech division on the Saturday evening, and to attend their awards reception and receive my award on the Sunday evening. The Engineering business meeting and luncheon was another highlight - I had so many great conversations over lunch, I almost forgot to eat!

Both divisions were so welcoming, as indeed was everyone I met over the three days. It really reminded me that this is the strength of the profession - the people.

The keynote

Leigh Gallagher, Assistant Managing Editor at *Fortune* magazine, gave an impassioned keynote about the value of skilled information professionals in the world of journalism. I particularly enjoyed Leigh's suggestion about branding information services as a high-value, artisanal product. Leigh noted that when writing her book, she'd hired *Fortune's* librarian to work for her personally as a researcher and fact-checker. This is a hugely valuable service that many people would pay a premium for - so why don't librarians exploit this!

The exhibition and sponsor sessions

The exhibitors and sponsors make the conference possible, so I was keen to spend time in the expo, talking to vendors and getting information about new products. Although I am not in a position to make purchasing decisions in my role, I always find it useful to keep abreast of what is out there.

The vendors were all welcoming and helpful, and keen to talk about their products even if I was not able to buy. The sponsor-presented sessions and networking events were also a useful addition to the programme - a particular highlight for me was the IEEE customer breakfast.

Session highlights

I was impressed by the consistently high standard of the programme. In most time slots there were at least two or three sessions I would have liked to attend - it was very difficult to choose between some! Below are a couple of my session highlights.

NASA Spinoffs

I indulged my nerdy side by going to this fascinating presentation on NASA spinoff technologies. I had no idea how much NASA technology had made it into our daily lives - everything from rehabilitation equipment

for people with lower body injuries, to baby formula! I was also interested to see a mention of London's infamous "wobbly bridge" (probably better known outside the UK as the Millennium Bridge), which was stabilised following its unsteady debut using technology originally developed for the space shuttle.

How to select the best databases for your community

Speaker Giovanna Badia gave a great, engaging and practical presentation on methods for comparing subscriptions databases. This was probably the most practically useful session I attended, and was also very entertaining - Giovanna is an excellent speaker and had evident enthusiasm for her topic. She outlined three main methods for comparing databases: journal lists, citation analysis, and sample references. All three methods looked very useful, and I will certainly be exploring these in my role.

Trends in Open Education and Open Access

Marilyn Billings spoke about an Open Education Resources (OER) initiative at the University of Massachusetts. She gave some compelling arguments in their favour, including saving money on textbooks, improved grades, aiding innovative teaching methods, and providing opportunities for librarians to raise awareness of topics like Open Access, copyright, Creative Commons, etc.

The programme at UMass was very ambitious, and had some impressive results. I would love to know how much this sort of thing is being explored in the UK.

Contributed papers

I tried to attend as many of the contributed papers sessions as I could, to see what my fellow SLA members were working on. I was impressed by the high standard and the variety of ideas and projects shared. All the papers I saw were excellent: particular highlights for me were Katharine Schopflin's paper on Knowledge Management; and the group paper on embedded librarianship in the Tuesday session.

Concluding thoughts

I came away from the conference feeling inspired, enthusiastic, and with my commitment to the profession and to SLA reaffirmed. It was great to see how dedicated SLA's members are to the future of both the organisation and the profession.

Throughout the conference, conversations about the recent SLA change report were a constant reminder to me of how much all involved care about the issues involved. I was

pleased to see SLA's Board engage in such an open and constructive way with the membership: it made me optimistic for the future. I would like to thank the Engineering and Sci-Tech divisions for this wonderful opportunity. In particular, I would like to extend a personal thank you to all the members I met and chatted with throughout the conference, for making it such a welcoming and positive atmosphere. I am looking forward to working with you all through the divisions for years to come.

The Conference Experience as a Candidate

by Dee Magnoni (Candidate, SLA President-Elect;
<http://bit.ly/deemagnoni>)

SLA's Annual Meeting provides a rich tapestry of learning and networking opportunities, meetings and talks across diverse topics. Each year I attend and look forward to catching up with colleagues, meeting new people, learning about product and service offerings from vendors and taking in new information. I have been a librarian in the technical fields most of my career, and have chaired the Engineering and IT divisions, as well as LMD.

As our members know, the Engineering Division routinely offers excellent programming. We also understand when partnering makes sense, how to maintain strong vendor relationships, and how to give thanks and praise to each other. In other words, the Engineering Division conference experience rocks. So what happens to the conference experience when you've agreed to be an SLA Board candidate? Could this experience be for you?

Like most experiences, there are challenges and opportunities. The hardest part, for me, was missing so much of the programming that I value. Board candidates are provided a list of events to attend during the conference. These are largely association-wide business or conference events such as the open Board of Directors' meeting, the Open General Session, Joint Cabinet, the Closing General Session and Business Meeting. We

are encouraged to attend networking events and a healthy sampling of unit breakfasts and luncheons. This schedule is important, but also limiting on the content side. I was able to speak at one session and attend another.

What I valued most at the Boston conference were my many, many conversations with members. The networking and unit meetings were fantastic chances to listen and engage, exchange ideas and consider our professional and association future. The Engineering Division luncheon was no exception. I joined the table for the Architecture, Building Engineering, Construction and Design (ABCD) Section. I had been a member of the ABCD Caucus, and lunch provided an opportunity to meet this lively and enthusiastic group. Sara Davis, in addition to leading the business of the day, invited all of the Engineering division members present to volunteer to write physical thank you notes to our vendor partners. Stationary was included!

Running for the Board of SLA calls on many engineering skills. The Charette process involves gathering the feedback of the community and brainstorming possible solutions. This is often used in architecture and construction projects. Boston conference conversations generated many ideas and

engaged members across the association. The UX or user experience design process is heavily used in computer engineering and product development. Design fundamentally involves understanding the needs and desires of end-users or, in our case, members. Like the Charette process, design involves a great deal of listening. Ideas are generated and turned into solutions. I heard a plethora of thoughtful, innovative ideas for SLA. Finally, teamwork is critical. As a group of candidates we were aware of SLA's current conversations, our need to work together and with members to find solutions, and to

simply check in with each other on hydration and food needs.

Attending the Boston conference as an SLA Board candidate was an amazing, exhausting experience. Rather than learning in content sessions, I learned through listening and exchanging ideas. I affirmed the awesomeness and passion of our members. Would I recommend the experience? Yes. We all have gifts to share. Not ready for the Board? Start with a short-term task. Plan a program. Moderate a list. Edit a web page. When ready, step up. The experience is like no other.

News from the Aerospace Section

Aerospace Section

Mary Silva Whittaker, Chair

The Aerospace Section of the Engineering Division encourages communication and cooperation among information professionals concerned with aerospace, aeronautical and related technologies. In addition, it fosters dialog with entities such as NASA, the AIAA and other important sources of technical data and bibliographical services.

Greetings Sci-Tech News readers and Aerospace Section members!

The SLA annual conference took place in Boston in June and I was fortunate enough to have been able to attend. So many informative sessions to participate in and opportunities for networking! And as Sara Davis mentioned in her column: lots of seafood choices, too!

Many thanks to the New England Chapter for their hospitality.

During the conference, I moderated our Aerospace Section program on NASA Spinoffs on Sunday afternoon and I was grateful for such a fascinating topic as presented by our three guest speakers, the generous support of our sponsors, and the interest of our captive attendance.

This session was sponsored by the American Institute of Aeronautics and Astronautics (AIAA), IEEE Xplore Digital Library, and Taylor & Francis.

As a quick recap, here is a description of the program: NASA spinoffs are technologies, originally developed to meet NASA mission needs, which have been transferred to the public and now provide benefits as commercial products or services. A panel will discuss how NASA Spinoffs enhance many aspects of daily life, including health and medicine, transportation, public safety, consumer goods, energy and environment, information technology, and industrial productivity. Learn how NASA technology has been successfully transferred to several companies.

In my introduction during the session, I mentioned that the NASA Spinoffs database

(<https://spinoff.nasa.gov/spinoff/database/>) is a great tool for information professionals to use to find out about technology transfers "from space and back to Earth." We need to learn more about possible technologies that might be applied, adapted, adopted, reused, or transferred into the organizations we work in – how can we help our own business or academic or other government leaders learn about what might be available to them in the form of a technology transfer from the aerospace world to our own working world? Additionally, it's always in our consciousness to provide strong value stories for our C-suites and upper management (here, I am channeling the sage words of our keynote speaker, Leigh Gallagher), and it was my hope that in the NASA Spinoffs session, there might be some nugget for attendees to take back to their workplace and do some follow through to increase the success of their own organization.

The speakers were:

- Daniel Coleman, Editor-in-Chief, NASA Spinoff publication
- Darryl Sargent, Vice President of National Security and Space, Draper Laboratory
- Daniel Theobald, Co-founder and Chief Technical Officer, Vecna Technologies

Please note that the speakers' presentations are available through the conference planner at <http://www.sla.org/attend/2015-annual-conference/2015-online-planner/>. Scroll to the session which took place on Sunday, June 14, 3:30 p.m.

SLA CONFERENCE RECAP

I am including a compiled report from two members, **Jeremy Cusker** and **Edna Paul-**



son, about the SLA 2015 Aerospace program. Thank you for the thoughtful and complete session reporting.

NASA Spinoffs: To Space and Back

A panel of three speakers explained the NASA Spinoff Technology Transfer Program, which documents the successful transfer to the private sector of technologies developed for the space program. The annual *Spinoff* publication highlights success stories of technology transfer, nearly 2,000 so far. The presentations, accompanied by exciting visuals, described their adaptation to broader uses.

Daniel Coleman (Editor-in-Chief of the NASA *Spinoff* publication) described technology transfer as NASA's oldest continuously operated mission, since it was mandated by the law creating NASA and is still going on today. A spinoff may be thought of as any technology patented by NASA or even just given away or co-developed by NASA and an independent company. Coleman's examples illustrated the wide range of space technologies that have been turned to general use. The Alter-G "anti-gravity" treadmill uses air pressure to help support the body, allowing rehabilitation patients to exercise with less discomfort and strain. A Texas company uses data from NASA Landsat satellites and other remote sensing devices to identify underground sources of water in Kenya and other arid regions. In a repurposing of a technology used in one of NASA's earliest crewed missions, shock absorbers developed for the Apollo Program were used in London's Millennium Bridge. The bridge swayed so much from pedestrian traffic that it was closed for two years before being retrofitted with dampers developed for the space program. Coleman explained that an important fatty acid identified as nutritionally important is now included in 99% of all infant formulae. And Coleman also reported that the SAR-Sat Personal Locator Beacons (PLSs) used for emergency search and rescue have been estimated to have saved over 40,000 lives since 1980.

Security and Space, Draper Laboratory) explained the development of digital fly-by-wire (DFBW) and its usefulness for a wide variety of vehicles. In the early 1970s, researchers at NASA Dryden Flight Research Center were interested in using a digital computer in a fly-by-wire system, but no digital computers were flight-qualified for use in airplanes. Astronaut Neil Armstrong observed that a digital computer had guided the Apollo 11 mission to the Moon and back. The resulting collaboration between NASA and Draper developed a DFBW system that was extremely reliable. Initially tested using a modified 2K Apollo computer installed in an F-8 aircraft, plus 8 IBM computers, it cost \$12 million when first developed. DFBW is used not only in commercial and military aircraft, such as the Airbus 320, F-16, F-117A, and the Stealth B-2 bomber, but also in research aircraft, automobile cruise control systems, and submarines.

Daniel Theobald (Chief Technology Officer of Vecna Technologies) gained his expertise in artificial intelligence at MIT while working on a rover for robotic exploration missions. He is a co-founder of Mass Robotics, which developed autonomously operating robots for hospitals. The robots perceive and make sense of their environment, finding their way through hospitals to make deliveries and even escort patients. Staff members interact with the robots using a touch screen or remote devices such as smart phones or workstations. Theobald described his company's work at developing robotic warehouse forklifts as having holistic "world models" rather than "dumb" sensors or proximity alerts. He said that it was inevitable that such technology, even while protecting human life, would also displace human labor. While there would likely be "no brakes" to the development of such technology, there would be a "steering wheel": that we as humans would have to decide how such technology progressed and what tasks we would do instead.

SEEKING FUTURE LEADERSHIP FOR THE AERO SECTION

Darryl Sargent (Vice President of National Please contact Edna Paulson at

edna.w.paulson@nasa.gov if you are interested in taking the leadership reins of the Aerospace Section, beginning in 2016 as "Chair-Elect" and becoming "Chair" when the conference occurs in Phoenix, Arizona in 2017. We need your leadership and interest in keeping the Aerospace Section a vital part

of the Engineering Division!

Warm regards,

Mary Silva Whittaker
SLA Aerospace Section Chair 2015

Aerospace Section Election

I'm writing as Chair of the Aerospace Section Nominating Committee near the end of July. We are in the process of identifying nominees for the new chairelect for the Aerospace Section, succeeding the current ChairElect Gabriele Hysong. This person will serve as chairelect in 2016, chair in 2017, and past chair in 2018. He or she will be involved with program planning for annual conferences and with the George Mandel Award Committee. The person will also participate as a

member of the Engineering Division Executive Board for the first two years (as Chair-Elect and Chair).

Please be on the lookout for the opportunity to vote for our new chairelect. Your participation is important. Thank you!

Edna Paulson
SLA Aerospace Section Past Chair, 2015

News from the Architecture, Building Engineering, Construction and Design (ABCD) Section

ABCD Section

Kati Arzeta, Chair

The scope of the Architecture, Building Engineering, Construction and Design Section is to promote the exchange of knowledge and information among individuals and organizations interested in the development, control, and use of information resources in the built environment with a focus on the specifications, codes, and standards used in the design and construction of buildings and structures.

The ABCD Section participated in two successful sessions during the annual conference. The first session, Green Buildings Standards, provided an overview of the standards, certifications and rating systems that relate to Green or Sustainable Building Design. A big thanks to the Environmental Resource Management Division for being the lead sponsor on this session. The ABCD Section also held a roundtable where we dis-

cussed a number of "hot topics" in engineering and building design including international standards and SharePoint. We are working on a dedicated discussion list. If you are interested, please let me know.

Kati Arzeta
ABCD Section Chair





The abstracts in the following section are selected from protoview.com, a database of scholarly titles and abstracts available for subscription from Ringgold, Inc. For more information, please visit: <http://www.ringgold.com/protoview>.

HYDROLOGY, OCEANOGRAPHY

GB451 9780123964830

Coastal and Marine Hazards, Risks, and Disasters

Edited by Jean T. Ellis and Douglas J. Sherman (Hazards and Disasters)

Elsevier, ©2015 573 p. \$150.00

While this book focuses on the scientific perspective, it also addresses social and economic issues, risk analysis, planning and preparedness, and recovery. The book begins with a chapter overviewing geophysical, biological, and ecological hazards of coastal and marine hazards and disasters. Subsequent chapters describe the latest scientific research on the causes and effects of various types of coastal and marine hazards and disasters, including tsunamis, storm surges, sea-level rise, storm-induced morphology changes, rip currents, sea ice, tropical cyclones, stresses on coral reef systems, threats to marsh resources, and harmful algal blooms. Many case studies are included. The book contains color and black and white photos, maps, and images.

GB600 9781482243154

Karstology: Karsts, Caves and Springs: Elements of Fundamental and Applied Karstology

Éric Gilli. Translated by Chloé Fandel

CRC Press, ©2015 244 p. \$99.95

This work explores the topic of karsts -- landscapes that occur in carbonate rocks that have been shaped by water, which make up almost 15% of rock outcrops in the world and are present in 20% of the land in the U.S. and 50% of land in France. The goal of the book is to present a wide range of perspectives and approaches to karstology. It is intended for a wide audience, from students to engineers working on development projects in areas where karsts exist.

GB1003 9780128000755

Practical and Applied Hydrogeology

Zekai Sen

Elsevier, ©2015 406 p. \$130.00

Hydrogeology is the study of the occurrence and

movement of groundwater through the Earth's soil and rocks. In this book, Zekai Sen covers the most cutting-edge research on the full scope of hydrogeology. Although a variety of topics are covered, including simulation of groundwater flow and transport, progressive hydro-geophysical methods and aquifer flow theory, themes found in every chapter, like the conceptualization and modeling of hydro-geologic challenges, help to make the book cohesive. Real data, case studies, and examples make the content practical to the real world. Although the content is detailed enough to interest industry professionals and researchers, it is written in a clear and concise manner so that the educated layperson can also benefit from the book.

GC89 9781118452585

Handbook of Sea-Level Research

Edited by Ian Shennan, Antony J. Long, and Benjamin P. Horton (Wiley Works)

Wiley, ©2015 581 p. \$199.95

The 35 chapters in this handbook explain field techniques for reconstructing sea level histories, laboratory techniques for analyzing fossils and sediment, five different dating methods, and the technical details of constructing complex sea level models. The contributors discuss coral microatolls, coastal caves, GSP and surveying, pollen in sediment, foraminifera, chronohorizons, compaction, and glacial isostatic adjustment. The last chapter describes tide gauges for measuring sea level. The companion website contains PDFs of all figures from the book, powerpoints of all tables, microfossil images, modeling code, and databases.

GC808 9780444538291

Principles of Electromagnetic Methods in Surface Geophysics

A.A. Kaufman and D. Alekseev (Methods in Geochemistry and Geophysics; Volume 45)

Elsevier, ©2014 769 p. \$205.00

The book introduces the theory of electromagnetic methods of applied geophysics to students and instructors in geophysics departments and to engineers and scientists using electromagnetic fields in resource exploration and crustal geophysics. It covers constant electric and mag-

netic fields, the propagation and diffusion of electromagnetic fields, the quasi-stationary field in a horizontally layered medium, electromagnetic soundings in a horizontally layered medium, and principles of inductive mining prospecting. Among specific topics are physical laws and Maxwell's equations, a quasi-stationary field of the magnetic dipole in a uniform medium, vertical magnetic dipole in the presence of uniform half space, principles of magneto-tellurics, and the behavior of the fields caused by currents in confined conductors.

GE25 9781483344331

Environmental Communication and the Public Sphere, 4th Edition

Robert Cox and Phaedra C. Pezzullo

SAGE, ©2016 422 p. \$72.00 (pa)

In the fourth edition of their textbook on environmental communication, Cox and Pezzullo incorporate changes in digital media, environmental activism, visual communication, popular culture, the greening of campuses and corporations, and other matters. They cover communicating for and about the environment, constructions of the environment, communicating in an age of ecological crises, environmental campaigns and movements, and citizen voices and environmental forums. Among the topics are contested meanings of environment, old and new news media and environmental journalism, environmental risk communication and the public, environmental justice and climate justice movements, and public participation in environmental decisions.

GE105 9783038354338

Advances in Green Science, Engineering and Built Environment; select papers

International Conference on Science, Engineering and Built Environments (2014: Bali, Indonesia) Edited by Md Azree Othuman Mydin (Applied Mechanics and Materials; Volume 747)

Trans Tech Publications, ©2015 391 p. \$210.00 (pa)

This collection compiles 89 papers from the International Conference on Science, Engineering and Built Environments (ICSEBS 2014), held in November 2014 in Bali, Indonesia. Written by architects and others from Asia, Australia, Europe, and Nigeria, the papers address architecture and urban planning in the context of the built environment, green building materials, technologies and decisions for providing environmental sustainability, and the monitoring and assessment of facilities and disaster prevention.

SCIENCE (GENERAL)

Q334 9781466584051

Artificial Intelligence Tools: Decision Support Systems in Condition Monitoring and Diagnosis

Diego Galar Pascual

CRC Press, ©2015 523 p. \$179.95

Pascual offers this volume regarding the use of artificial intelligence tools to monitor systems performance and diagnose problems. The first chapter presents a general overview of the conceptual issues and practical challenges with the pursuit of self-diagnostics. Presently used techniques are then discussed, followed by issues of detection including the identification of anomalies, differentiation of benign anomalies from failure indications, and supervision paradigms. Failure classification is then explored through the approaches of two-stage response, nearest neighbor, cluster analysis, stochastic and parametric techniques, and information theory. The final chapter addresses uncertainty and decision-making regarding monitored systems based on only partially confident results.

Q375 9781785480058

Uncertainty Quantification and Stochastic Modeling With Matlab

Eduardo Souza de Cursi and Rubens Sampaio (Numerical Methods in Engineering)

ISTE, ©2015 442 p. \$185.00

De Cursi and Sampaio present the main ideas of stochastic modeling and uncertainty quantification using functional analysis as the main tool. More specifically they show how some ideas often considered complex, such as conditional expectation, can be developed in a systematic way by considering their definition as orthogonal projections in convenient Hilbert spaces. Among the topics are elements of probability theory and stochastic processes, maximum entropy and information, nonlinear algebraic equations involving random parameters, differential equations under uncertainty, and reliability-based optimization.

MATH, COMPUTERS

QA166 9789814566032

Spanning Tree Results for Graphs and Multigraphs: A Matrix-Theoretic Approach

Daniel J. Gross, John T. Saccoman, and Charles L. Suffel

World Scientific, ©2015 175 p. \$75.00

Gross, Saccoman, and Suffel explain how to cal-

culate the number of spanning trees in a multigraph using algebraic and analytic techniques. They also include several results on optimizing the number of spanning trees among all multigraphs in a class, a problem they say has some practical use in network reliability theory. Their topics are the algebraic approach to calculating the number of spanning trees, an analytic approach to multigraphs with the maximum number of spanning trees, threshold graphs, approaches to the multigraph problem, and Laplacian integral graphs and multigraphs.

QA176 9780821898598

Algorithmic Problems of Group Theory, Their Complexity, and Applications to Cryptography; proceedings

Algorithmic Problems of Group Theory and Their Complexity (2013: San Diego, California) and Algorithmic Problems of Group Theory and Applications to Information Security (2013: Chestnut Hill, Massachusetts) Edited by Delaram Kahrobaei and Vladimir Shpilrain (Contemporary Mathematics; Volume 633)

American Mathematical Society, ©2015 123 p. \$105.00 (pa)

The AMS Special Sessions on Algorithmic Problems of Group Theory and Their Complexity was held January 9-10, 2013 in San Diego, California and the AMS Special Sessions on Algorithmic Problems of Group Theory and Application to Information Security was held April 6-7, 2013 at Boston College in Chestnut Hill, Massachusetts. This book represents the contributions to these two conferences. The papers compiled here cover algorithmic group theory and application to cryptography. Group-based cryptography is gaining increased attention in recent years and has inspired new techniques and applications.

QA179 9781470410414

Endoscopic Classification of Representations of Quasi-Split Unitary Groups

Chung Pang Mok (Memoirs of the American Mathematical Society; Volume 235, Number 1108)

American Mathematical Society, ©2015 248 p. \$105.00 (pa)

This volume describes the endoscopic classification tempered representations of quasi-split unitary groups over local fields and the endoscopic classification of the discrete automorphic spectrum of quasi-split unitary groups over global number fields. It uses Arthur's methods to establish analogous results for quasi-split unitary groups and presents the formalism of parameters and the main classification theorems in the local and global settings, the local character

identities that characterize the representations in a packet, comparison of the trace formulas of unitary groups and general linear groups, the stable multiplicity formula, the packets associated with generic local parameters and the local Langlands classification for tempered representations of quasi-split unitary groups, the packets associated with general parameters, and the induction arguments of all the global theorems.

QA248 9783110369755

Positive Dynamical Systems in Discrete Time: Theory, Models, and Applications

Ulrich Krause (De Gruyter Studies in Mathematics; Volume 62)

De Gruyter, ©2015 348 p. \$168.00

Krause presents a systematic, rigorous, and self-contained treatment of positive dynamical systems based on analyzing the iteration of nonlinear self-mappings of a convex cone in some real vector space. He draws on the approach G. Birkhoff developed for the linear case regarding Jentzsch's Theorem in infinite dimensions, and that H. Samelson developed independently in considering Perron-Frobenius Theory in finite dimensions. The crucial point of this approach, he says, is the translation of a strong positivity property in the linear mapping into a contractivity property with respect to some metric internal to the convex cone.

QA274 9781848167568

Nonlinear Mixture Models: A Bayesian Approach

Tatiana Tatarinova and Alan Schumitzky

Imperial College Press, ©2015 269 p. \$108.00

Tatarinova and Schumitzky present students, academics, and researchers with an examination of Bayesian methods for the analysis of a variety of nonlinear, hierarchical mixture models with a finite, if unknown, number of components. The authors have organized the main body of their text in seven chapters devoted to mathematical descriptions of nonlinear mixture models, label switching and trapping, treatment of mixture models with an unknown number of components, applications of BDMCMC, KLMCMC, and RPS, nonparametric methods, and a variety of other related subjects. Tatiana Tatarinova and Alan Schumitzky are faculty members of the University of Southern California. Distributed by World Scientific.

QA278 9781119993438

Meta-Analysis: A Structural Equation Modeling Approach

Mike W.-L. Cheung

Wiley, ©2015 378 p. \$75.00

Cheung presents students, academics, researchers, and professionals working in a wide variety of contexts with a comprehensive introduction to the theory and methodology of statistical meta-analysis. The author has organized the main body of his text in nine chapters devoted to an introduction, a brief review of structural equation modeling, computing effect sizes for meta-analysis, univariate meta-analysis, multivariate meta-analysis, and a wide variety of other related subjects. Mike W.-L. Cheung is a faculty member of the National University of Singapore.

QA314 9781783266401

Computational Methods in the Fractional Calculus of Variations

Ricardo Almeida, Shakoor Pooseh, and Delfim F. M. Torres

Imperial College Press, ©2015 266 p. \$78.00

Almeida, Pooseh, and Torres present students, academics, and practicing mathematicians with an exploration of various mathematical techniques for use in solving problems of fractional calculations of variations (FCV). The authors have organized the main body of their text in thirteen chapters devoted to the calculus of variations and optimal control, fractional calculus, fractional variational problems, and a variety of other related subjects. Ricardo Almeida and Delfim F. M. Torres are faculty members of the University of Aveiro, Portugal. Shakoor Pooseh is a faculty member of Technische Universität Dresden, Germany.

QA323 9783037191507

Hybrid Function Spaces, Heat and Navier-Stokes Equations

Hans Triebel (EMS Tracts in Mathematics; 24) European Mathematical Soc., ©2014 185 p. \$64.00

Continuing the work he started in *Local Function Spaces, Heat and Navier-Stokes Equations* (2013), Triebel presents a new approach to exhibiting relations of Morrey-Companato spaces with Sobolev spaces, Besov spaces, and Hölder-Zygmund spaces. Morrey-Companato spaces extend the notion of functions of bounded mean oscillation, he explains, and play a crucial role in the theory of linear and nonlinear partial differential equations. The material is suitable for graduate students and mathematicians with a working knowledge of basic elements of (global) function spaces. Distributed in the US by the American Mathematical Society.

QA351 9789814449618

Contributions to the Theory of Zeta-Functions: The Modular Relation Supremacy

Shigeru Kanemitsu and Haruo Tsukada (Series on Number Theory and Its Applications; Volume 10) World Scientific, ©2015 303 p. \$115.00

Looking at zeta-functions as viewed from their symmetry-functional equations, Kanemitsu and Tsukada assume no Euler product and so no zero-free zone. They try to exhaust the a.a. identities that are equivalent to the functional equations, to provide a handy manual for a quick search. Among their topics are a grocery of special functions, unprocessed modular relations, the Ewald expansion or the incomplete gamma series, the general modular reaction, and the product of zeta-functions.

QA377 9781470410162

Shock Waves in Conservation Laws With Physical Viscosity

Tai-Ping Liu and Yanni Zeng (Memoirs of the American Mathematical Society; Volume 234, Number 1105)

American Mathematical Society, ©2014 168 p. \$89.00 (pa)

To study the perturbation of a shock wave in conservation laws with physical viscosity, Liu and Zeng obtain the detailed pointwise estimates of the solutions, and show that the solution converges to a translated shock profile. Because they assume the strength of the perturbation and of the shock to be small but independent, their results apply to the Navier-Stokes equations for compressible fluid and the full system of magneto-hydrodynamics, including the case of multiple eigenvalues in the transversal fields, as long as the shock is classical.

QA379 9781611973815

Unified Transform for Boundary Value Problems: Applications and Advances

Edited by A.S. Fokas and B. Pelloni SIAM, ©2015 293 p. \$94.00 (pa)

Eight papers developed from interchanges at a May 2012 workshop in Edinburgh explore theoretical and applied aspects of unified transform --also known as the Fokas transform or method of Fokas --to the analysis and numerical modeling of boundary value problems for linear and integrable nonlinear partial differential equations. They also look at the closely related well-established boundary element method, showing how it can be viewed as the counterpart in the physical space of the numerical implementation of the unified transform, which is formulated in

the spectral or Fourier space.

QA402 9781782421658

Parameter Identification and Monitoring of Mechanical Systems Under Nonlinear Vibration

Juan Carlos Jauregui (Woodhead Publishing in Mechanical Engineering)

Woodhead Publishing, ©2014 208 p.

\$200.00

A mechanical engineer specializing in machine design, structural analysis, and mechanical vibration, Jauregui begins with the derivation of equations of motion from a classical dynamics point of view as a foundation for analyzing the individual dynamics of mechanical systems. He describes such concepts as generalized coordinates, constraints, the D'Alembert principle, and Euler-Lagrange's and Hamilton's equations. Then he covers linear vibrations, nonlinear vibrations, signal processing, parameter identification, applying signal processing to mechanical systems, practical experience and industrial applications, and the synchronization of nonlinear systems.

QA565 9783110317886

Algebraic Curves and Finite Fields: Cryptography and Other Applications

Edited by Harald Niederreiter, Alina Ostafe, Daniel Panario, and Arne Winterhof (Radon Series on Computational and Applied Mathematics; Volume 16)

De Gruyter, ©2014 240 p. \$182.00

Ten survey articles reflect invited lectures at the workshops Algebraic Curves Over Finite Fields, held in November 2013, and Emerging Applications of Finite Fields, held in December 2013. They present some new developments, and stimulate both the interaction between different application areas and the continuous quest for new applications. The topics include generic Newton polygons for curves of given p-rank, the discrete logarithm problem with auxiliary inputs, a garden of curves with many automorphisms, permutations of finite fields and uniform distribution modulo 1, and an analog of the Kronecker-Weger theorem in positive characteristic.

QA614 9781470411121

Hyperbolic Dynamics, Fluctuations and Large Deviations; proceedings

Special Semester: Hyperbolic Dynamics, Fluctuations and Large Deviations (2013: Lausanne, Switzerland) Edited by D. Dolgopyat, Y. Pesin, M. Pollicott, and L. Stoyanov (Proceedings of Symposia in Pure Mathematics; Volume 89)

American Mathematical Society, ©2015 339 p.

\$120.00

This book presents papers based on lectures and talks given during the January-June 2013 Special Semester on Hyperbolic Dynamics, Large Deviations, and Fluctuations, held at the École Polytechnique Fédérale de Lausanne, Switzerland. The book contains all six lectures from the short courses given, plus expanded versions of selected talks given at two workshops held during the program. Describing current research on the long-term behavior of dynamical systems and their statistical behavior, the book focuses on four main research topics: large deviations and fluctuations for systems with some hyperbolicity; limit theorems in hyperbolic domains; fluctuations for systems with zero entropy; and statistical properties of coupled hyperbolic systems. In addition to researchers and graduate students in dynamical systems and ergodic theory, the book will also be of interest to researchers in related areas such as statistical physics, spectral theory, and some aspects of number theory and geometry.

ASTRONOMY

QB51 9781583818688

Library and Information Services in Astronomy VII: Open Science at the Frontiers of Librarianship; proceedings

Conference on Library and Information Services in Astronomy: Open Science at the Frontiers of Librarianship (7th: 2014: Naples, Italy) Edited by András Holl, Soizick Lesteven, Dianne Dietrich, and Antonella Gasperini (Astronomical Society of the Pacific Conference Series; Volume 492)

Astronomical Soc./Pacific, ©2015 347 p.

\$77.00

Astronomy librarians present 55 papers on data librarianship: research data curation and preservation; metrics and visualization; the preserving astronomical heritage and the history of astronomy; tools, techniques, and skills; changing practices in a changing world; the use and access of astronomical literature; journals and electronic books: the present and beyond; open access and open science; publishing and publishers; and the future of the conference. Among specific topics are data scientist training for librarians, a bibliometric analysis of observatory publications 2008-12, the manipulation of images in ancient books: the case of Sacrobosco's De Sphaera Mundi, a review of tasks in the library of Bosscha Observatory over two decades, and digitizing the patrimonial collections of the Paris Observatory Library.

QB450 9783527408894

Laboratory Astrochemistry: From Molecules Through Nanoparticles to Grains

Edited by Stephan Schlemmer, Thomas Giesen, Harald Mutschke, and Cornelia Jäger
Wiley-VCH, ©2015 508 p. \$175.00

This introduction to laboratory astrochemistry reviews recent advances in molecular spectroscopy, photodissociation, gas-phase processes, surfaces of grains, dust formation, and their spectroscopic properties. The 28 contributions describe techniques for finding answers about the fundamental questions of the physics and chemistry of interstellar gas, calculating rate coefficients for the gas-phase reactions and inelastic processes needed to model the chemistry of molecular clouds, determining absorption and photodissociation cross sections, and understanding surface reactions under interstellar conditions. The closing chapters share laboratory techniques for characterizing grain optical properties, the infrared spectra of amorphous silicates and crystalline silicates, and the gas-phase condensation of magnesium iron silicates, carbon grains, and other cosmic dust grains.

QB843 9781583818725

Physics and Evolution of Magnetic and Related Stars; proceedings

Physics and Evolution of Magnetic and Related Stars (2014: Nizhny Arkhyz, Russia) Edited by Yu. Yu. Balega, I. I. Romanyuk, and D. O. Kudryavtsev (Astronomical Society of the Pacific Conference Series; Volume 494)

Astronomical Soc./Pacific, ©2015 358 p.
\$77.00

Editors Balega, Romanyuk, and Kudryavtsev present students, academics, researchers, and general interest readers with a collection of academic papers and scholarly articles selected from research presented at a conference held in August of 2014 at the Special Astrophysical Observatory in Nizhny Arkhyz, Russia. The editors have organized the contributions that make up the main body of the text in five parts devoted to the magnetic fields of OBA stars, the physics and evolution of chemically peculiar and related stars, theory and exoplanets, and methods and instrumentation. Yu. Yu. Balega, I. I. Romanyuk, and D. O. Kudryavtsev are all employed by the Special Astrophysical Observatory, Russia.

QB991 9788378861690

Road to Reality With Roger Penrose

Edited by James Ladyman, Stuart Presnell, Gordon McCabe, Michal Eckstein, and Sebastian J. Szybka

Copernicus Center Press, ©2015 279 p.
\$69.90

In this collection of essays, European and US physicists and philosophers explore the ideas and impact of contemporary British physicist Sir Roger Penrose. Some topics examined include geometric quantum mechanics, black holes in general relativity, a quasi-local Hamiltonian approach to gravitational energy, and general relativity and von Neumann algebras. Other subjects discussed are Mach's principle within general relativity, an algebraic approach to quantum gravity, the abuse of gravity theories in cosmology, Penrose's Weyl curvature hypothesis, and twistors, special functions, and the Penrose transform. Black and white photographs and images are included. Distributed in the US by ISBS.

PHYSICS

QC21 9781133954057

Physics for Scientists and Engineers With Modern Physics, 9th Edition

Raymond A. Serway and John W. Jewett, Jr.
Brooks/Cole, ©2014 1579 p. \$324.95

Serway and Jewett present students, academics, and professionals working in a wide variety of contexts with the ninth edition of their comprehensive examination of modern physics for scientists and engineers. The authors have organized the forty-six chapters that make up the main body of their text in six parts devoted to mechanics, oscillations and mechanical waves, thermodynamics, electricity and magnetism, light and optics, and modern physics. Raymond A. Serway is a retired faculty member of James Madison University, Virginia. John W. Jewett, Jr. is a retired faculty member of California State Polytechnic University.

QC39 9783038353782

Computational Methods in Applied Sciences; select papers

International Conference on Computational Methods in Applied Sciences (2014: Kraków, Poland) Edited by A. Szczotok, A. Gadek-Moszczak, J. Pietraszek, N. Radek, and R. Dwornicka (Applied Mechanics and Materials; Volume 712)

Trans Tech Publications, ©2015 121 p.
\$124.00 (pa)

Editors Szczotok, Gadek-Moszczak, Pietraszek, and Dwornicka present students, academics, researchers, and professionals working in a wide variety of contexts with a peer-reviewed collection of academic essays and scholarly articles selected from research presented at the Inter-

national Conference on Computational Methods in Applied Sciences held in December of 2014 in Kraków, Poland. The editors have organized the contributions that make up the main body of their text in four parts devoted to biotechnology applications, applied mechanics and terotechnology, computational methods and their application, and computational science as a key element of engineering progress.

QC176 9783038354482

Solid State Science & Technology: Towards an Immersive Breakthrough; select papers

Regional Conference on Solid State Science and Technology (27th: 2013: Kota Kinabalu, Sabah, Malaysia) Edited by Jedol Dayou, Azhan Hashim, Walter Charles Primus, Fuei Pien Chee, Mohamad Deraman, and Roslan Abd-Shukor (Advanced Materials Research; Volume 1107)

Trans Tech Publications, ©2015 742 p.

\$250.00 (pa)

Editors Dayou, Hashim, Primus, Chee, Deraman, and Abd-Shukor present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of peer-reviewed scholarly essays and academic papers selected from materials presented at the twenty-seventh Regional Conference on Solid State Science and Technology held in Kota Kinabalu, Sabah, Indonesia. The editors have organized the contributions that make up the main body of the text in twelve chapters devoted to advanced ceramics, catalytic materials, composites and polymers, manganite and magnetic materials, and a wide variety of other related subjects.

QC185 9783038354543

Recent Developments of Diffusion Processes and Their Applications: Fluid, Heat and Mass: Special Topic Volume With Invited Peer Reviewed Papers Only

Edited by Andreas Öchsner, Irina Belova, and Graeme Murch (Defect and Diffusion Forum; Volume 364)

Trans Tech Publications, ©2015 204 p.

\$125.00 (pa)

Reviewing recent developments in diffusive transport, engineers in various specialties consider classical mass diffusion problems such as phase transformation, corrosion behavior, thin layers, and microstructures; technical applications related to fuel production and energy conversion and biological and biomedical materials; and experimental measurements and methods, simulation, and approaches to predicting properties and processes. Among the topics are heat and mass transfer and energy aspects in com-

bined infrared-convective drying of bee pollen, the interpretation of a marker experiment conducted during the formation of a higher oxide on the surface of a lower oxide, morphological evolution in hetero-epitaxial thin film structures at the nanoscale, effects of mechanical alloying on the structure and properties of iron powders, and the direct numerical simulation of the pressure drop through structured porous media.

QC244 9781782420286

Power Ultrasonics: Applications of High-Intensity Ultrasound

Edited by Juan A. Gallego-Juárez and Karl F. Graff (Woodhead Publishing Series in Electronic and Optical Materials; Number 66)

Woodhead Publishing, ©2015 1142 p.

\$380.00

Editors Gallego-Juárez and Graff present this desk reference on the principles and applications of power ultrasonics, containing thirty-six chapters divided into five sections. After an introductory chapter reviewing the history and present roles of ultrasonics and presenting the layout of the book, part one discusses principles of wave propagation, acoustics, equipment materials and design, and measurement and modeling of appliance operation. The remaining four sections present applications of ultrasonics to particular fields, namely welding, metal forming, and machining; engineering and medicine; food and pharmaceuticals; and environmental maintenance and remediation including mining and biofuels.

QC320 9783038354390

Fluid Flow, Energy Transfer and Design II: Special Topic Volume With Invited Peer Reviewed Papers Only

Edited by Antonio F. Miguel, Luiz Rocha, and Andreas Öchsner (Defect and Diffusion Forum; Volume 362)

Trans Tech Publications, ©2015 248 p.

\$135.00 (pa)

Editors Miguel, Rocha, and Öchsner present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic articles and scholarly papers that together provide an examination of a variety of topics in fluid dynamics, energy transfer, and design. The contributions that make up the main body of the text cover a variety of subjects, including mass transfer modeling into disk spaces of heat turbomachines, molecular dynamics simulation of lubricant depletion instability under laser heating, diffusion flame stability of low calorific fuels, and others.

QC411 9781614994473

Atom Interferometry; proceedings

International School of Physics "Enrico Fermi"; Course 188 (2013: Varenna Italy) Edited by G.M. Tino and M.A. Kasevich (International School of Physics "Enrico Fermi"; Volume 188)

IOS Press, ©2014 780 p. \$290.00

This proceedings volume edited by Tino and Kasevich offers a review of current activities, issues, and prospects in the field of atom interferometry as presented at the 2013 Varenna School. Several long, detailed papers are presented, covering a general review of atom interferometry, interferometry with composite quantum objects, use of internal excitation, general relativity and gravitational waves, quantum mechanics and matter waves oscillating at the Compton frequency, Bloch oscillations, precision measurement of the gravitational constant, inertial sensing, measurement of local gravity, several contributions on gravitational wave detection, measurement of electromagnetic interactions, Bose-Einstein condensates, phase estimation, and interferometry beyond classical limits.

QC414 9781630810009

Backscattering from Multiscale Rough Surfaces With Application to Wind Scatterometry

Adrian K. Fung (Remote Sensing)

Artech House, ©2015 306 p. \$169.00

Fung presents students, academics, and researchers with an investigation of surface backscattering mechanisms, trends, and comparisons with measurements. The author has organized the main body of his text in five chapters devoted to an introduction to wave scattering, surface backscattering mechanisms, surface backscattering trends and comparisons with measurements, backscattering from the sea surface, and a geophysical model function for wind scatterometry. Adrian K. Fung is a faculty member of the University of Texas at Arlington and the former director of the Wave Scattering Research Center at the same institution.

QC454 9780857092731

Laser Spectroscopy for Sensing: Fundamentals, Techniques and Applications

Edited by Matthieu Baudalet (Woodhead Publishing Series in Electronic and Optical Materials; Number 43)

Woodhead Publishing, ©2014 565 p. \$295.00

Physicists and chemists describe how laser spectroscopy can be used for sensing and chemical analysis. They cover fundamental aspects to con-

sider when planning the use of laser spectroscopy to solve a problem, the technical aspects of several spectroscopic techniques, and the fields of applications of such techniques. Among their topics are fundamentals of spectral and temporal control of lasers used for spectroscopy, using databases for data analysis, laser-induced fluorescence spectroscopy, photothermal spectroscopy, medical applications, applications in forensic science, and applying laser-induced breakdown spectroscopy to analyze secondary materials in industrial production.

QC611 9781849739856

Semiconductor Quantum Dots: Organometallic and Inorganic Synthesis

Mark Green (RSC Nanoscience & Nanotechnology; Number 33)

Royal Society of Chemistry, ©2014 277 p. \$145.00

This guide aids chemists and materials scientists in preparing quantum dots and related materials by solution methods and outlines the chemistry involved in quantum dot synthesis. It describes how to make quantum dots, precursors, conditions, and the resulting properties, covering the preparation of II-VI, III-V, and IV-VI semiconductor nanomaterials and other chalcogenides and pnictide nanomaterials; the synthesis of core/shell quantum dots; ligand chemistry; and the use of single-source precursors in nanoparticle synthesis. Distributed in the US by Ingram Publisher Services.

QC680 9789814632911

Forces of the Quantum Vacuum: An Introduction to Casimir Physics

Edited by William Simpson and Ulf Leonhardt

World Scientific, ©2015 264 p. \$45.00 (pa)

Eight physicists introduce physics related to the Casimir force and vacuum energies. The form of macroscopic quantum electrodynamics they use is of fairly recent creation, and supersedes its predecessors, they say, and the Casimir physics is moving so quickly that much of this treatise will also soon be outdated, but their goal is an entry point to the field not a comprehensive or definitive treatment. They cover normal mode quantum electrodynamics: the quantum vacuum and its consequences, Van der Waals and Casimir-Polder dispersion forces, the Casimir stress in real materials, macroscopic quantum electrodynamics and vacuum forces, measuring Casimir phenomena, and Casimir forces at the cutting edge.

QC718 9789814644822

Rotation and Momentum Transport in Magnetized Plasmas

Edited by Patrick H. Diamond, Xavier Garbet, Philippe Ghendrih, and Yanick Sarazin (Reviews of the Theory of Magnetized Plasmas; Volume 2) World Scientific, ©2015 315 p. \$115.00
Editors Diamond, Garbet, Ghendrih, and Sarazin present students, academics, and researchers with a collection of academic papers and scholarly articles focused on atmospheric science and magnetized plasma physics in both controlled fusion and astrophysics. The nine contributions that make up the main body of the text are devoted to a variety of related subjects, including the atmospheric wave/turbulence jigsaw, the possible role of constraints in MHD turbulence, the dynamics of structures in configuration space and phase space, and many others. Patrick H. Diamond is a faculty member of the University of California, San Diego. Xavier Garbet, Philippe Ghendrih, and Yanick Sarazin are both with the Institute for Magnetic Fusion, France.

QC760 9781608078967

Advanced Computational Electromagnetic Methods and Applications

Edited by Wenhua Yu, Wenxing Li, Atef Elsherbeni, and Yahya Rahmat-Samii (Artech House Antennas and Electromagnetics Analysis Library) Artech House, ©2015 574 p. \$169.00
The 12 chapters in this volume detail methods and applications in advanced computational electromagnetics (CEM). Engineers from North America, China, and Europe describe the use of spectral domain analysis to retrieve the absolute electric field magnitude and phase values in the near-field region of an antenna; a high-order finite difference time domain (FDTD) method; a general-purpose computing technique on a graphics processing unit to achieve higher performance of the FDTD method than a central processing unit for simulation of microwave circuits; recent FDTD advances for electromagnetic wave propagation in the ionosphere; the Phi coprocessor acceleration techniques in computational electromagnetic methods; domain decomposition methods for finite element analysis of large-scale electromagnetic problems; high-accuracy computations for electromagnetic integral equations; and a fast electromagnetic solver based on randomized pseudo-skeleton approximation. Other chapters cover computational electromagnetics for the evaluation of electromagnetic compatibility issues in multicomponent energy systems; the manipulation of electromagnetic waves based on

new unique metamaterials; a time-domain integral equation method for transient problems; and stochastic modeling methods and computational electromagnetics as applied to human exposure assessment.

QC766 9783527335268

Lanthanides and Actinides in Molecular Magnetism

Edited by Richard A. Layfield and Muralee Murgesu Wiley-VCH, ©2015 346 p. \$190.00
Chemists synthesize the findings published since the turn of the 21st century about the magnetic properties of coordination compounds based on highly anisotropic lanthanide ions. They explore the important fundamental aspects of f-element electronic structure and magnetism, then use this information as a basis for understanding the most eye-catching recent developments and cutting-edge aspects. The topics include mononuclear lanthanide complexes: using the crystal field theory to design single-ion magnets and spin qubits, lanthanides in extended molecular networks, experimental aspects of lanthanide single-molecule magnet physics, lanthanide complexes as the realization of qubits and qugates for quantum computing, and lanthanides and the magnetocaloric effect.

QC794 9789814602662

Perspectives on String Phenomenology

Edited by Bobby Acharya, Gordon L. Kane, and Piyush Kumar (Advanced Series on Directions in High Energy Physics; Volume 22) World Scientific, ©2015 433 p. \$128.00
Editors Acharya, Kane, and Kumar present students, academics, and researchers with a collection of academic papers and scholarly articles focused on string theory, string phenomenology, and particle physics beyond the standard model. The fourteen contributions that make up the main body of the text are devoted to a variety of related subjects, including the what and why of moduli, the weakly coupled heterotic string, mathematics for string phenomenology, and others. Bobby Acharya is a faculty member of King's College London, UK. Gordon L. Kane is a faculty member of the University of Michigan. Piyush Kumar is a faculty member of Yale University, Connecticut.

QC878 9781589483767

Mapping and Modeling Weather and Climate With GIS

Edited by L. Armstrong, K. Butler, J. Settelmaier, T. Vance, and O. Wilhelm

Esri Press, ©2015 319 p. \$49.99 (pa)
 Editors Armstrong, Butler, Settelmaier, Vance, and Wilhelmi collect contributions from meteorologists, climatologists, and programmers in this geoinformatics reference geared toward engineers, researchers, policymakers, and students of atmospheric and geospatial science and modeling. The foreword emphasizes the emerging collaboration between atmospheric and geospatial scientists. The book then proceeds in six parts discussing representations of atmospheric phenomena, observational methods and data presentation, effective atmospheric and ocean modeling, integrated analysis of models and observations, use and improvement of web services, and tech/programming resources for working with data. Use of GIS and ArgGIS are heavily emphasized, along with mention of the NOAA Climate Prediction Center, METOC, NetCDF, and Python as research and modeling tools.

CHEMISTRY

QD101 9783038359975

Non-Stoichiometric Oxides of 3D-Metals: Diagrams of the Concentration of Point Defects

Andrzej Stoklosa (Materials Science Foundations; Volume 79)

Trans Tech Publications, ©2015 567 p.
 \$250.00 (pa)

Characterizing the equilibrium state of non-stoichiometric metal oxides in relation to oxygen pressure, Stoklosa defines the total standard Gibbs energy of the formation of defects at a given deviation from the stoichiometry, and develops a method for determining complete diagrams of concentrations of the point defects which takes into account the minority defects. Numerous diagrams display the results of calculating point defect concentrations for a series of pure and doped oxides of transition metals with varying M/O ratios, crystallographic structure, and point defect structure.

QD172 9781118688311

Computational Methods in Lanthanide and Actinide Chemistry

Edited by Michael Dolg

Wiley, ©2015 458 p. \$215.00

The open f-shells found in lanthanide and actinide elements make the electronic structure of f-element unusually complex. This book draws on the expertise of top researchers in the field to explore electronic structure methods that can be used for quantum chemical calculations of lan-

thanides and actinides. They pay particular attention to atom, molecule and solid applications as well as the capacity of these methods to predict the outcome of experiments. As such experimentalists will find the book particularly useful but both students and researchers in the fields of quantum chemistry and computational chemistry will find the book useful. Specific topics covered include the study of actinides by relativistic coupled cluster methods, applied computational actinide chemistry and the gaussian basis sets for lanthanide and actinide elements.

QD181 9781782620440

New Advances in Carbon Nanomaterials

Royal Society of Chemistry (Faraday Discussions; Volume 173, 2014)

Royal Society of Chemistry, ©2014 459 p.
 \$270.00

This volume contains 28 lectures, papers, and discussions from the September 2014 Faraday Discussion on developments in carbon nanomaterials, held in London. The topics include spinning carbon nanotube fibers using the floating catalyst high-temperature route: purity issues and the critical role of sulphur, whether maximum aromaticity or maximum pentagon separation is the origin behind the stability of endohedral metallofullerenes, aqueous dispersions of oligomer-grafted carbon nanomaterials with controlled surface charge and minimal framework damage, gel electrophoresis using a selective radical for separating single-walled carbon nanotubes, and reducing graphene oxide and graphene composite materials to improve gas sensing at low temperatures. Distributed in the US by Ingram Publisher Services.

QD262 9781849738965

New Trends in Cross-Coupling: Theory and Applications

Edited by Thomas J Colacot (RSC Catalysis Series; Number 21)

Royal Society of Chemistry, ©2015 864 p.
 \$175.00

Chemists from many countries review recent developments in the theory and application of cross-coupling technologies. Their topics include prominent ligand types in modern cross-coupling reactions, ancillary ligand design in developing palladium catalysts for challenging selective monoarylation reactions, boron reagent activation in Suzuki-Miyaura coupling, palladium-catalyzed carbonylative coupling and carbon-hydrogen activation, and recent large-scale applications of transition metal-catalyzed couplings for synthesizing pharmaceuticals, and techniques

for detecting palladium for active pharmaceutical ingredients prepared with cross-coupling. Distributed in the US by Ingram Publisher Services.

QD305 9780080982120

Best Synthetic Methods: Organophosphorus (V) Chemistry

Edited by Christopher M. Timperley (Best Synthetic Methods)

Academic Press, ©2015 769 p. \$225.00
British and French chemists describe practical methods, synthetic tips, and short-cuts to form phosphorus (V) compounds, among them phosphonyl, phosphoryl, and various organophosphate species containing one or more sulfur or selenium atoms. When relevant, they include toxicity and historical data. The overview discusses such topics as the natural occurrence of phosphorus, phosphorus compounds in living systems, the nomenclature of organophosphorus compounds, chiral phosphorus compounds and biological implications, fire retardants and fire-extinguishing compounds, and biotinylated nerve agent mimics for activity-based enzyme profiling.

QD382 9781771880299

Polysulfide Oligomer Sealants: Synthesis, Properties, and Applications

Yuri N. Khakimullin, Vladimir S. Minkin, and Timur R. Deberdeev

Apple Academic Press, ©2015 286 p.
\$129.95

Khakimullin, Minkin, and Deberdeev present this book on sulfide polymers and other thiokol-related materials. The first three chapters focus on synthesis and properties of polysulfide oligomers, beginning with an overview of production technology and liquid thiokols, then discussing vulcanization, polymer composition, and the relationship between vulcanization agents and final properties. The second half focuses on fine-tuning properties of polysulfides intended for use as sealants, moving from modification strategies and filler influence to the practical applications and limitations of the materials. Chapters are summarized with keyword lists. Distributed by CRC Press, a Taylor and Francis Group.

QD480 9783038354246

Modeling and Optimization of Materials and Structures: Special Topic Volume With Invited Peer Reviewed Papers Only

Edited by M. Karama, H. Borouchaki, A. Cherouat, and A. EL Hami (Advanced Materials Research; Volume 1099)

Trans Tech Publications, ©2015 148 p.
\$135.00 (pa)

Editors Karama, Borouchaki, Cherouat, and El Hami present a collection of selected, peer-reviewed papers devoted to examining the modeling and optimization of materials used in the construction of various structures. The contributions that make up the main body of the text are focused on a variety of related subjects, including the fatigue behavior of aerospace Al-Cu, Al-Li, and Al-Mg-Si sheet alloys, 3D remeshing simulation of aluminum foams behavior under static load, the tip effect in single-walled carbon nanotubes, and others.

QD553 9781466561199

Nanoelectrochemistry

Edited by Michael V. Mirkin and Shigeru Amemiya
CRC Press, ©2015 849 p. \$199.95

Mirkin and Amemiya present this electrochemistry-nanoscience crossover text as an introduction for student or reference for researchers in the field. Section I examines the theory of electron transfer in nanoscale systems. Specific nanoelectrical designs, materials, and dynamics are then discussed in Section II, including monolayer-protected clusters, semiconductor photochemistry, single-molecule electronics, solid-state devices, stochastic events, carbon nanostructures, electrodeposition, nanoporosity, microelectrode investigation of living cells, applications in proteins and enzymes, and exocytosis measurement. The final section discusses nanoelectrochemical techniques, including the use of liquid-liquid interfaces, microfabrication, more on electrodeposition, scanning electron microscopy of nanostructures and cells, tunneling microscopy, atomic force microscopy, and potentiometry.

QD569 9780444632784

Rotating Electrode Methods and Oxygen Reduction Electrocatalysts

Edited by Wei Xing, Geping Yin, and JiuJun Zhang
Elsevier, ©2014 299 p. \$185.00

Understanding electrochemical catalytic reaction mechanisms, such as the electrocatalytic oxygen reduction reaction (ORR) that is important for fuel cell functioning, requires specialized tools and techniques. Perhaps the most important and commonly-used techniques are rotating disk electrode (RDE) and rotating ring-disk electrode (RRDE) techniques. In order to develop new fuel cell technologies, RDE and RRDE can be used to evaluate the activities of catalysts and their ORR mechanisms. In this book, experts in the field come together to provide the most up-to-date information available on RDE/RRDE and ORR. In addition to a complete description of the different techniques, the authors also include working ex-

amples and case studies. This book will appeal to advanced students and researchers in the fields of energy, electrochemistry, and fuel cells.

TECHNOLOGY (GENERAL)

T11 9788170007418

Guidelines for Technical Writing for Librarians & Information Professionals

S. Seetharama

Ess Ess Publications, ©2015 109 p. \$22.00

This basic handbook for technical writers first summarizes the nature of technical writing. It then offers guidelines starting with recognition of the need for a technical communication and describing numerous interim steps leading to publication, including organizing the paper; writing the paper, achieving a natural and effective writing style; and a detailed methodology touching on team formation, collecting information, abstracting; planning the document, and field testing, among other things. The following section goes over principles for presenting information, including audiovisual and web content material. The last chapter explains the editing process. Author Seetharama is the former Head of the Documentation Research and Training Centre, Bangalore, India. Distributed in the US by ISBS.

T55 9781782420323

Protective Clothing: Managing Thermal Stress

Edited by Faming Wang and Chuansi Gao (Woodhead Publishing Series in Textiles; Number 154) Woodhead Publishing, ©2014 472 p. \$265.00 Editors Wang and Gao present this volume on protective clothing with a focus on thermal insulation. Part one consists of sequential chapters on various types of protective clothing and necessary parameters, including cold insulation, water immersion, heat insulation, chemical/biological/radioprotective items, ballistic protection, spacesuits, and medical protection. Part two includes several contributions on technology that can be used in protective clothing, including phase-change materials, shape-memory alloys, electrical heating, and perfusion-based cooling. Part three discusses how to predict and model thermal stress based on human physiology and thermal physics of clothing materials.

T56 9783038353799

Mechatronics Engineering and Modern Technologies in Industrial Engineering; select papers; 3 volume set

International Conference on Mechatronics Engi-

neering and Modern Technologies in Industrial Engineering (2014: Changsha, Hunan, China) Edited by Fang Shao, Fenjie Long, Jie Liang, Haihong Chen, and Meini Yuan (Applied Mechanics and Materials; Volume 713-715)

Trans Tech Publications, ©2015 3041 p.

\$550.00 (pa)

The first volume in the three-volume set from the October 2014 conference collects recent Chinese research on applied mechanics and dynamics, mechanical engineering, manufacturing, measurement and instrumentation, monitoring, testing tools, mechatronics, robotics, and automated control. Volume two explores electrical systems, communications, embedded systems, numerical methods, and algorithms for modeling and data mining, while the third volume addresses network engineering, software development, information security, chemical engineering, and material processing technology. Two papers from the Aviation Key Laboratory of Science and Technology on Precision Manufacturing propose an optical triangulation method for measuring blade section and a fast calibration model for optical probe laser beams. Other topics of the 600 plus papers include coal mine voltage fluctuation analysis, service pricing optimization for mobile phone companies, predicting air traffic network flow, knowledge discovery in incomplete medical data, and cloud storage access control.

T173 9783038354178

Recent Trends in Materials, Mechanical Engineering, Automation and Information Engineering; select papers

International Conference on Recent Trends in Materials and Mechanical Engineering (3rd: 2014: Auckland, New Zealand) Edited by Khanittha Wongseedakaew and Qi Luo (Applied Mechanics and Materials; Volume 736)

Trans Tech Publications, ©2015 232 p.

\$135.00 (pa)

The 36 papers cover materials science and materials technology and materials mechanical properties; applied mechanics and advanced materials application in manufacturing; information technologies and intelligent control systems; and robotics, automation, and control. Among specific topics are the process dependence on microstructure and mechanical properties for bulk alloys based on aluminum and iron, analyzing the convection heat transfer coefficient on a shape-memory alloy actuator under various ambient temperatures with the finite difference method, and implementing collision avoidance using a modification of the expanded guide circle for tele-operated robots.

T175 9780080994178

Design of Experiments for Engineers and Scientists, 2nd Edition

Jiju Antony (Elsevier Insights)

Elsevier, ©2014 208 p. \$69.95

Design of Experiments (DOE) is a powerful technique for answering scientific questions, however due to high levels of statistical jargon often included in explanations, it has not been heavily utilized by engineers and managers. In this book, Antony relies heavily on examples and case studies to explain the process in such a way that it will be accessible to researchers without a scientific background. Antony introduces industrial experimentation and then explores the fundamentals of DOE including screening designs, full factorial designs, fractional factorial designs, and how to apply DOE to the service industry. The second edition covers the latest developments of DOE and includes two new chapters.

T339 9789814452533

Fundamentals of Patenting and Licensing for Scientists and Engineers, 2nd Edition

Matthew Y. Ma

World Scientific, ©2015 336 p. \$68.00

Writing for scientists, engineers, and inventors as well as for patent practitioners, corporate patent managers, and intellectual property business leaders, Ma contends that most patents today are not profitable and that most capital generated from patent sales and licensing comes from only a small percentage of patents. The reason, he says, is because most patents have not been written to their full potential. He explains how to do so for people who have no knowledge about patents or patent law, covering the basics, getting ready for patenting, patent prosecution and post granting, patent monetization, and skills.

ENGINEERING (GENERAL, CIVIL)

TA1 9783038354109

Mechanical, Information and Industrial Engineering; select papers

International Conference on Mechanical, Information and Industrial Engineering (3rd: 2014: Weihai, China) Edited by Li Wang (Applied Mechanics and Materials; Volume 740)

Trans Tech Publications, ©2015 1058 p. \$285.00 (pa)

Over 200 papers consider such areas as materials science and processing technologies; general mechanical engineering, applied mechanics, and dynamics; mechatronics, robotics, and vehicle engineering; control technologies, automa-

tion, design, and simulating manufacture; power systems, energy engineering, and applications; electronics and integrated circuits, embedded technology, and applications; measurement, testing, monitoring, identification and detection, analysis, and methodology; signal and image, video processing, data mining and acquisition, computational mathematics, and algorithms; and product design, planning, project management, and industrial engineering.

TA157 9781466681309

Contemporary Ethical Issues in Engineering

Edited by Satya Sundar Sethy (Advances in Civil and Industrial Engineering)

Engineering Science Reference, ©2015 343 p. \$215.00

Editor Satya Sundar Sethy presents students, academics, researchers, and professionals working in a wide variety of engineering and related contexts with a collection of academic essays and scholarly articles examining engineering ethics and contemporary ethical issues confronting engineering practitioners in the field. The editor has organized the seventeen contributions that make up the main body of the text in three sections devoted to practice and execution of ethical behaviors, ethics education, and the engineering philosophy of ethics. Satya Sundar Sethy is a faculty member of the Indian Institute of Technology.

TA158 9781133114703

Engineering Communication

Charles W. Knisely and Karin I. Knisely

Cengage Learning, ©2015 524 p. \$102.95 (pa)

Aiming to bridge the gap between academic and industrial expectations, the authors provide engineering students and entry-level engineers with a practical and readable resource for communicating their knowledge according to the conventions of their profession. They explain how to prepare and present engineering reports, proposals, and other types of engineering communications. They also highlight awareness of the organizations that establish formatting standards in their discipline, highlighting both the common elements and the differences among them. Twelve chapters are divided into four parts: introduction to finding, reading, and citing technical sources; preparing technical reports; other types of professional writing; oral presentations and poster preparation. Chapters are: why do engineers need to communicate?; finding information and citing sources; reading technical reports; step-by-step preparation of a laboratory report with sample report; revising reports and reviewing grammar; engineering toolbox and visual elements; pro-

fessional correspondence; proposals, collaborative writing, and progress reports; specifications, contracts, and intellectual property; overview reports; oral presentations and running meetings; poster presentations.

TA164 9781466517554

Computational Bioengineering

Edited by Guigen Zhang

CRC Press, ©2015 496 p. \$179.95

Editor Zhang presents this compilation on computational approaches to bioengineering problems. Each contribution opens with a review of computational advances in a selected topic area, discusses relevant biophysics and modeling challenges, and ends with case studies. Topics include arthroplasty, bone remodeling, load-bearing soft tissues, spinal solute transport, cardiovascular flows, cancer metastasis, photodynamic therapy, cell phenotyping, protein-surface interactions, electrical double layers, nanopores, DNA translocation, and dielectrophoresis, and various modeling strategies including image-based, mathematical, and simulated are discussed.

TA169 9781118858882

Reliability, Maintainability, and Supportability: Best Practices for Systems Engineers

Michael Tortorella (Wiley Series in Systems Engineering and Management)

Wiley, ©2015 425 p. \$135.00

Tortorella presents students, academics, researchers, and professionals working in a wide variety of contexts with an examination of the tools necessary for systems engineers to lead in the development of systems and services that are reliable, sustainable, and supportive of their customers needs. The author has organized the thirteen chapters that make up the main body of his text in three parts devoted to reliability engineering, maintainability engineering, and supportability engineering. Michael Tortorella is a visiting professor at Rutgers University, New Jersey.

TA365 9781466592872

Finite Element and Boundary Methods in Structural Acoustics and Vibration

Noureddine Atalla and Franck Sgard

CRC Press, ©2015 449 p. \$169.95

Atalla and Sgard offer this technical text for graduate and senior undergraduate students as well as researchers and engineers on using the finite element method (FEM) and boundary element method (BEM) to analyze structural acoustics and vibrations. The book is introduced with a brief overview of computational vibroacoustics

and its own structure. Basic acoustic equations are presented, followed by integral formulations. The finite element method is then introduced, followed by a guide to its use in solving uncoupled structural acoustics problems. Internal acoustic coupling is discussed and the boundary element method is demonstrated, with a final chapter on external acoustic coupling and general variational formulation.

TA403 9783038354529

Binders, Materials and Technologies in Modern Construction; select papers

Conference Silicate Binders (12th: 2014: Brno, Czech Republic) Edited by Karel Dvorak, Dominik Gazdic, Vit Petranek, Iveta Hajkova, and Radek Magrla (Advanced Materials Research; Volume 1100)

Trans Tech Publications, ©2015 224 p.

\$125.00 (pa)

The 44 papers present basic scientific and practical engineering perspectives on cement and binders based on cement, inorganic binders, silicate materials, and the research and assessment of building material properties. Among the topics are high-strength alkali-activated slag cements with controlled setting times and early strength gain, modeling the moisture behavior of brick-fitting masonry with filled hollows during conditions of the winter season, ultrasound measurements for detecting the disintegration of concrete slabs exposed to fire, the effect of high temperature on the microstructure of repair mortars containing artificial aggregate based on sintered ash, and testing the penetration rate of waterproofing gels while exposed to higher temperature.

TA404 9781466681835

Handbook of Research on Recent Developments in Materials Science and Corrosion Engineering Education

Edited by Hwee Ling Lim (Advances in Chemical and Materials Engineering)

Engineering Science Reference, ©2015 493 p. \$325.00

Editor Hwee Ling Lim presents students, academics, researchers, and professionals working in a variety of contexts with a collection of academic papers and scholarly articles focused on contemporary developments in engineering education, materials science, and corrosion. The editor has organized the twenty-one contributions that make up the main body of the text in four parts devoted to innovations in materials science and engineering degree course curricula, incorporating information technology into materials science, engineering, and corrosion education,

interdisciplinary approaches to teaching materials science, engineering, and corrosion, and professional skills and career development for engineers. Hwee Ling Lim is with The Petroleum Institute of the United Arab Emirates.

TA455 9781771880381

Applied Research on Polymer Composites

Edited by Pooria Pasbakhsh, A.K. Haghi, and Gennady E. Zaikov (AAP Research Notes on Polymer Engineering Science & Technology)

Apple Academic Press, ©2015 312 p. \$129.95

This is an edited collection of ten technical papers on current research on polymer products and chemical processes. New applications for polymers are being developed around the world at a fast pace, including electroactive polymers, nanoproducts and robotics. It is meant to present a balanced expression of pertinent elements of materials science and mechanics, basic and applied research, and high-technology and low-cost development. The first topic, which is "Trends In The New Generation Of Biodegradable Polymers," is divided among the first three chapters. The other chapters are titled as follows: properties, synthesis and application of polyacetylene; trends in activated carbon fibers; polymer nanocomposites; the effects of modified silica-gelatin hybrid systems on the properties of paper products; computational techniques in nanosystems; calculating internal structure and equilibrium configuration of nanoparticles; and trends in ozonation of polymer compounds.

TA462 9780857093479

Rare Earth-Based Corrosion Inhibitors

Edited by Maria Forsyth and Bruce Hinton (Woodhead Publishing Series in Metals and Surface Engineering; Number 61)

Woodhead Publishing, ©2014 319 p. \$215.00

Chemists, material scientists, and other researchers examine the chemistry of rare earth elements that could make them candidates for corrosion inhibitors to replace chromium, which has been identified as a carcinogen. Their topics include testing and analysis techniques in rare earth inhibitor research, corrosion inhibition with rare earth metal compounds in aqueous solutions, anodized anti-corrosion coatings for aluminum using rare earth metals, novel and self-healing anti-corrosion coatings using rare earth compounds, and tunable multifunctional corrosion-resistant metallic coatings containing rare earth elements.

TA492 9780857090478

Control of Welding Distortion in Thin-Plate

Fabrication: Design Support Exploiting Computational Simulation

Tom Gray, Duncan Camilleri, and Norman McPherson (Woodhead Publishing Series in Welding and Other Joining Technologies; Number 83)

Woodhead Publishing, ©2014 332 p. \$250.00

Dealing with welding distortion is as much a responsibility for engineers designing structures as it is for people engaged in the fabrication of those structures, say Gray, Camilleri, and McPherson. They offer a guide to using simulation for controlling distortion at the design stage. Their topics include fabricating stiffened thin-plate structures and the problem of welding distortion, predictive modeling and research on in-process techniques, the experimental investigation of models of welding distortion, computationally efficient methods for modeling welding processes, finite-element thermo-mechanical techniques for predicting welding distortion, and simulating welding distortion in the fillet welding of stiffened plate structures.

TA654 9783038354130

Applied Methods of the Analysis of Static and Dynamic Loads of Structures and Machines; select papers

International Scientific Conference on Experimental Stress Analysis (52nd: 2014: Mariánské Lázně, Czech Republic) Edited by Pavel Polach (Applied Mechanics and Materials; Volume 732)

Trans Tech Publications, ©2015 427 p.

\$210.00 (pa)

Experimental stress analysis is an important aspect of machinery construction. On the 2nd to the 5th of June 2014, the 52nd International Scientific Conference on Experimental Stress Analysis (EAN 2014) was held in Mariánské Lázně in the Czech Republic as an opportunity for academics, research scientists and industrial companies to discuss the current research on applied methods of analysis of static and dynamic loads, and discuss the future or the field. The proceedings from that conference are contained in this book. Topics covered include residual stress, experimental methods of analysis in mechanics of materials and biomedical engineering, designing in structural mechanics and teaching these subjects.

TA705 9781138028043

Power Engineering, Control and Information Technologies in Geotechnical Systems

Edited by Genadiy Pivnyak, Oleksandr Beshta, and Mykhaylo Alekseyev

CRC Press, ©2015 210 p. \$139.95

Contributors from Ukraine's National Mining University explore ways to increase the efficiency of

energy use by geotechnical systems. Their topics include compensation of the cogging torque by means of a control system for the transverse flux motor, informational and methodological support for energy efficiency control, optimizing fine grinding using acoustic monitoring, a new method to solve a continuous facility location problem under uncertainty, the design of a subordinate control system with two degrees of freedom, and the electromechanical system of a turning machine tool.

TA1530 9781118225516

Nanophotonic Structures and Materials

Edited by David L. Andrews (Photonics: Scientific Foundations, Technology and Applications; Volume 2)

Wiley, ©2015 412 p. \$145.00

In the second of four volumes on photonics, contributors from physical and information sciences examine nanometer-scale structures and materials used in the field. Their topics include silicon photonics, the state of the art and future directions of metamaterials, dielectric photonic crystals, the magnetic control of spin in molecular photonics, light-harvesting material for organic electronics, recent developments in metal-oxide-based photoelectrochemical hydrogen production, and the optics of control of cold atoms and artificial electromagnetism.

TA1815 9781482228250

Optical Fiber Sensors: Advanced Techniques and Applications

Edited by Ginu Rajan (Devices, Circuits, and Systems)

CRC Press, ©2015 559 p. \$149.95

Electrical and other engineers describe the fundamentals of optical fiber sensors, recent developments in them, and practical applications of the technology. Their topics include interferometric fiber-optic sensors, polymer optical fiber sensors, surface plasmon resonance fiber-optic sensors, liquid crystal optical fibers for sensing applications, acousto-optic effect and its applications in optical fibers, distributed fiber-optic sensors and their applications, active core optical fiber chemical sensors and applications, optical fiber humidity sensors, and optical fiber sensors for smart composite materials and structures.

HYDRAULIC ENGINEERING

TC540 9781138028081

Dam Protections Against Overtopping and Accidental Leakage; proceedings

International Seminar on Dam Protections Against Overtopping and Accidental Leakage (1st: 2014: Madrid, Spain) Edited by Miguel Angel Toledo, Rafael Morán, and Eugenio Oñate

CRC Press, ©2015 305 p. \$119.00

Overtopping and accidental leaking, mainly due to internal erosion, are different technological problems, but the frequently available technology for solving them is the same, so the conference considered them together. Keynote addresses cover technical manual: overtopping protection for dams, embankment dam protection and a design methodology for downstream rockfill toes, and flood overtopping protection for concrete dams. Another 22 selected papers look at the failure of embankment dams due to overtopping or accidental leakage, self-protections for embankment dams, hard protections for embankment dams, masonry dam failure due to overtopping and its protection, and miscellaneous topics.

TC1645 9781784660383

Marine Technology and Operations: Theory & Practice

O.T. Gudmestad

WIT Press, ©2015 393 p. \$354.00

Drawing on his experience both as a working marine engineer and as an academic researcher and teacher, Gudmestad presents a textbook on marine technology that touches on all the areas marine engineers need to know, and provides a foundation for students who want to specialize in just one area. His topics include linear wave theory, tsunami waves, pipeline design, the stability of ships and floating vessels, maritime operations, station keeping, description of ocean waves, and wave data analysis and extreme waves.

TC1650 9780128003435

Wave Mechanics and Wave Loads on Marine Structures

Paolo Boccotti

Butterworth-Heinemann, ©2015 324 p.

\$150.00

In order to create ocean engineering science, Boccotti uses quasi-determination theory and small-scale field experiments to combine the deterministic and stochastic approach to wave theory with field measurement and experiments in wave tanks. Among his topics are the basic concepts of wave mechanics, complements of space-time theory of sea states, calculating wave forces on three-dimensional space, calculating wave forces on gravity platforms and submerged tunnels, and the design of a wave energy converter.

ENVIRONMENTAL TECHNOLOGY

TD192 9780128000212

Microbial Biodegradation and Bioremediation

Edited by Surajit Das (Elsevier Insights)
Elsevier, ©2014 616 p. \$125.00

Rapid urbanization and other anthropogenic activities are quickly disturbing the natural biodiversity and processes of the atmosphere, hydrosphere and troposphere that took millions of years to develop. This book, part of the "Elsevier Insights" series, brings together experts in the field to discuss bioremediation strategies. These strategies would use different groups of microorganisms and plants to detoxify toxic xenobiotic compounds, such as synthetic organochlorides, crude oil and more. The book is designed for academics, advanced students, researchers, environmentalists, industrialists and anyone interested in a technical understanding of the potential of bioremediation.

TD193 9780128002117

Food, Energy, and Water: The Chemistry Connection

Edited by Satinder Ahuja
Elsevier, ©2015 461 p. \$150.00

Editor Ahuja offers this volume giving a chemistry perspective on the interconnectedness of three core necessities of human life: food, water, and energy. The first chapter gives an overview of the common sourcing and management issues associated with these resources, followed by a chapter discussing the history of water quality regulation and monitoring in the U.S. Ensuing chapters include experimental data and discussion regarding surface chemistry of atmospheric aqueous aerosol, purification of antibiotics and mining waste from waste water, the need for natural gas to maintain water and food supply, water usage and water quality issues associated with energy extraction, energy development from agriculture, water usage and contamination in agriculture, and quality analysis of dietary items. The last several chapters suggest policy avenues for conserving and intelligently using water as we enter an era of scarcity.

TD442 9780444633620

Membrane Technology and Engineering for Water Purification: Application, Systems Design and Operation, 2nd Edition

Rajindar Singh
Butterworth-Heinemann, ©2015 435 p.
\$220.00

Writing for water engineers, Singh summarizes the current science and practice of using membrane technology to purify water. He covers water and membrane treatment; hybrid membrane systems --applications and case studies; hybrid membrane plant design and operation; and analyzing the design, energy, and cost of membrane processing. Among specific topics are membrane-separation characteristics, membrane cleaning and sanitization, high-purity water production, system diagnosis and maintenance, and energy and cost survey of membrane processes.

TD497 9781482255041

Greywater Reuse

Amit Gross, Adi Maimon, Yuval Alfiya, and Eran Friedler

CRC Press, ©2015 283 p. \$119.95

Water scarcity and the desire to increase the sustainability of domestic water resources stimulated agricultural and environmental engineers Gross, Maimon, Alfiya, and Friedler to review scores of studies in greywater from around the world. They examined treatment facilities in urban and rural environments, developed greywater treatment systems, and quantified potential environmental and health risks posed by greywater at different treatment levels of treatment. They cover greywater characteristics, treatment, usages, risk assessment and management, policy and legislation, perceptions and attitudes toward greywater, and techno-economic aspects of greywater reuse.

TD746 9780470050729

The Biology and Troubleshooting of Facultative Lagoons

Michael H. Gerardi (Wastewater Microbiology Series)

Wiley, ©2015 229 p. \$89.95 (pa)

Gerardi, a wastewater microscopy specialist and consultant, offers a guide to facultative lagoons used for the treatment of domestic, municipal, and industrial wastewaters. It describes the roles of microscopic and macroscopic organisms that live in and around lagoons, including algae, archaea, bacteria, crustaceans, duckweed, aquatic and immature insects, grasses, rotifers, watermeal, weeds, worms, and burrowing animals, as well as the natural processes of wastewater treatment with algae, bacteria, and other organisms, and operational problems that can occur and their identification, prevention, and control. He reviews the biological, chemical, and natural physical treatment processes in aerobic, facultative, and anaerobic zones of a facultative lagoon, including biochemical reactions like aerobic and

anaerobic respiration, fermentation, photosynthesis, and changes in pH and alkalinity, in addition to monitoring and control measures for the excessive growth of algae, duckweed, watermeal, and rooted plants and midges and mosquitoes and odors.

TD794 9781118456910

Sustainable Solid Waste Management: A Systems Engineering Approach

Ni-Bin Chang and Ana Pires (IEEE press Series on Systems Science and Engineering)

IEEE/Wiley, ©2015 908 p. \$149.95

Chang and Pires present students, academics, researchers, and professionals working in a variety of contexts with a comprehensive examination of the use of systems analysis techniques toward the solving of solid waste management application problems. The authors have organized the twenty-four chapters that make up the main body of their text in five parts devoted to the fundamental background, the principles of systems engineering, industrial ecology and integrated solid waste management strategies, integrated systems planning, design, and management, and uncertainty analyses and future perspectives. Ni-Bin Chang is an author and elected fellow of several international science and engineering associations. Ana Pires is a doctoral researcher with Nova University, Portugal.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK1010 9781118861622

Power System Harmonics and Passive Filter Designs

J.C. Das (IEEE Press Series on Power Engineering; 49)

IEEE/Wiley, ©2015 844 p. \$145.00

Das presents a reference that he intends to provide comprehensive treatment of the generation, effects, and control of harmonics in electric power systems, including new harmonic mitigation technologies, the detailed step-by-step design of passive filters, inter-harmonics, and flicker. His topics include power system harmonics, Fourier analysis, harmonic generation, reducing harmonics at the source, estimating and measuring harmonics, harmonic resonance, harmonic distortion limits according to standards, and the harmonic modeling of systems.

TK2931 9783527330423

Materials for Low-Temperature Fuel Cells

Edited by Bradley Ladewig, San P. Jiang, and

Yushan Yan (Materials for Sustainable Energy and Development)

Wiley-VCH, ©2015 250 p. \$185.00

Editors Ladewig, Jiang, and Yan present this research reference on low-temperature fuel cell technology. An introductory chapter outlines key contemporary challenges in the field. Contributions then discuss alkaline fuel cells bearing anion exchange membranes, proton exchange membranes and catalytic support materials, anode catalysts in direct alcohol fuel cells, membrane materials for direct methanol fuel cells, hydroxide exchange membranes, microbial fuel cells and bioelectrochemistry, microfluidics, and electrocatalysts in direct alcohol cells.

TK3105 9781783265879

Computational Intelligence Applications in Smart Grids: Enabling Methodologies for Proactive and Self-Organizing Power Systems

Edited by Ahmed F. Zobaa and Alfredo Vaccaro
Imperial College Press, ©2015 245 p. \$98.00

Editors Zobaa and Vaccaro present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic articles and scholarly papers focused on emerging technologies and the application of computational intelligence to smart grid technology. The editors have organized the contributions that make up the main body of the text in seven chapters devoted to wide-area monitoring, protection and control needs, applications, and benefits, a MINLP approach for network reconfiguration and dispatch in distribution systems, improving voltage regulations in smart grids through adaptive fuzzy agents, and a variety of other related subjects. Ahmed F. Zobaa is a faculty member of Brunel University, UK. Alfredo Vaccaro is a faculty member of the University of Sannio, Italy. Distributed by World Scientific.

TK3226 9781482243833

Harmonics, Power Systems, and Smart Grids, 2nd Edition

Francisco C. De La Rosa

CRC Press, ©2015 242 p. \$149.95

De La Rosa offers the second edition of this reference regarding harmonics and propagation of such in the electrical grid, with general updates, new examples and figures, and three new chapters. The book begins with fundamentals of harmonic distortion and power quality, harmonic sources, and standardization. The middle half of the book discusses the effects of harmonics on distribution systems, measurement, filtering and other distortion reduction techniques, harmonic

analyses, and power losses. The three final chapters introduce the concept of a smart grid and discuss the behavior of harmonics in the present and in-development forms of smart grid.

TK5104 9781118984055

Innovations in Satellite Communications and Satellite Technology: The Industry Implications of DVB-S2X, High Throughput Satellites, Ultra HD, M2M, and IP

Daniel Minoli

Wiley, ©2015 420 p. \$120.00

Minoli surveys some of the new key technical and service developments affecting commercial satellite communications that have emerged during the past few years, and the implications and/or opportunities for end-users and service providers. He covers DVB-S2 modulation extensions and other advances, high-throughput satellites and KA/KU spot beam technologies, aeronautical mobility services, maritime and other mobility services, machine-to-machine developments and satellite applications, ultra-high-definition video/television and satellite implications, and satellite technology developments: electric propulsion and launch platforms.

TK6564 9781118874820

Wireless Transceiver Architecture: Bridging RF and Digital Communications

Pierre Baudin

Wiley, ©2015 729 p. \$160.00

Baudin notes that there is little literature on transceiver (such as those used in cellular phones and two-way radios) architecture and system design, and that his reference is an effort to fill that gap for industry professionals. The author addresses what transceivers are expected to do, limitations in physical implementation, and transceiver architecture and system design. Specific topics include: RF signal complex modulation, bandpass noise representation, free space radiation, analog electronic and LO phase noise, smooth AM-AM conversion, mixer implementation, transceiver budgets, direct conversion transmitters and receivers, algorithms for transceivers, and more.

TK6587 9781783262748

Beamforming: Sensor Signal Processing for Defence Applications

Athanassios Manikas (Communications and Signal Processing; Volume 5)

Imperial College Press, ©2015 292 p. \$99.00

Manikas edits this highly technical volume on sensor array signal processing for defense applications. Chapters address space-time adaptive processing (STAP) algorithms, look-down airborne

radars and non-homogeneity of data, synthetic aperture radar (SAR), multi-input multi-output (MIMO) radar, wake wave detection, ocean-towed arrays, and array uncertainties including geometrical uncertainty, electrical uncertainty, pointing error, and robustness issues. Each chapter is structured with an introduction, technical content including theory and applications, and summary/conclusion, with some chapters including an appendix. A firm background in mathematics up through linear algebra is required to understand the chapter content.

TK7872 9781466682511

Technological Breakthroughs in Modern Wireless Sensor Applications

Edited by Hamid Sharif and Yousef S. Kaviani (Advances in Wireless Technologies and Telecommunication)

Information Science Reference, ©2015 417 p. \$200.00

Computer and electrical engineers outline recent research findings of scientists around the world on the complex tradeoffs among many modern wireless sensor network application variables, including the challenges of wireless communications, energy management system, deployment costs, hardware and software, system reliability, security, and performance. Their topics include network design and performance evaluation of a wireless sensor network for precision agriculture, the prevalence of anomalies in real world sensor network deployments and the need for detection mechanisms, a fault-diagnosis and decision-making algorithm for determining faulty nodes in malicious networks, a survey of the development of mobile wireless sensor networks, and covert communication in wireless sensor networks for electronic health applications.

CHEMICAL TECHNOLOGY

TP245 9781782422341

Palladium Membrane Technology for Hydrogen Production, Carbon Capture and Other Applications

Edited by Aggelos Doukelis, Kyriakos Panopoulos, Antonios Koumanakos, and Emmanouil Kakaras (Woodhead Publishing Series in Energy; Number 68)

Woodhead Publishing, ©2015 383 p. \$280.00

Editors Doukelis, Panapoulos, Koumanakos, and Kakaras present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic essays and scholarly articles devoted to palladium membrane

technology, and the manufacturing, design, and implementation issues associated with their use. The editors have organized the sixteen contributions that make up the main body of the text in two sections devoted to membrane fabrication and reactor design and application of palladium membrane technology in hydrogen production, carbon capture, and other applications. Aggelos Doukelis and Antonios Koumanakos are faculty members of the National Technical University of Athens, Greece. Kyriakos Panopoulos is a faculty member of the Centre for Research and Technology Hellas, Greece. Emmanouil Kakaras is affiliated with both institutions.

TP359 9783038354185

Electrocatalysts for Hydrogen Energy: Special Topic Volume With Invited Peer Reviewed Papers Only

Edited by Bozena Losiewicz (Solid State Phenomena; Volume 228)

Trans Tech Publications, ©2015 413 p.
\$170.00 (pa)

Although hydrogen itself is not an energy source, it is an ideal energy carrier and can be produced on a large scale in an economically profitable manner. Water electrolysis can produce high purity hydrogen and is nonpolluting, however the traditional electrocatalysts, noble metals, cannot be used directly because they are extremely expensive. This book, volume 228 of the Solid State Phenomena series, contains papers on the development of novel solid state electrocatalysts. Topics covered include conventional electrode materials, electrodeposition of composite electrocatalysts, structure of electrode material, electrochemical properties of solid state electrocatalysts and techniques for the characterization of electrode materials. Although the material is designed to be applicable to both novice and expert hydrogen researchers, the writing style and explanations are at a high level.

TP690 9781482230864

Analytical Methods in Petroleum Upstream Applications

Edited by César Ovalles and Carl E. Rechsteiner, Jr.

CRC Press, ©2015 315 p. \$139.95

The 14 chapters in this book outline new analytical methods and instrumentation used in the measurement of the upstream portion of the petroleum industry for the determination of the components, classes of compounds, properties, and features of petroleum and its fractions. Engineers and scientists from around the world describe the composition of petroleum through a

molecular composition continuity model; a modular sampling system to collect and control samples for analysis; oil-in-water monitoring; the chemical and physical properties of heavy oils, their fractions, and products from their upgrading; workhorse analytical measurements, including gas chromatography and nuclear magnetic resonance applications; asphaltene and heavy ends analysis, focusing on on-column filtration, the absorption of asphaltenes on iron oxide, and microfluidic technology; and chemometrics and modeling approaches to improve the understanding of upstream operations, including data fusion, computer simulations, and infrared spectroscopic data to develop molecular information for crude oils.

TP1110 9781482255546

Functionalized Polysulfones: Synthesis, Characterization, and Applications

Edited by Silvia Ioan

CRC Press, ©2015 314 p. \$199.95

This volume presents 10 chapters on the preparation, characterization, and bioapplications of functionalized polysulfones and their derivatives. Chemists from Romania discuss obtaining polysulfones with pendant functional groups, mathematical models and numeric simulation of the interactions in solutions of modified polysulfones, structure-property relationships of functionalized polysulfones, phosphorus-containing polysulfones for high-performance applications in advanced technologies, the origin of dielectric response and conductivity of functionalized polysulfones, functionalized polysulfone-metal complexes, the biocompatibility of polysulfone compounds, the antimicrobial activity of polysulfone structures, and their potential biomedical applications, focusing on blood, cell, and tissue-contacting devices.

MILITARY & NAVAL SCIENCE

UA10 9780128019672

Application of Big Data for National Security: A Practitioner's Guide to Emerging Technologies

Edited by Babak Akhgar, Gregory B. Saathoff, Hamid R. Arabnia, Richard Hill, Andrew Staniforth, and Petra Saskia Bayerl

Butterworth-Heinemann, ©2015 291 p.
\$69.95 (pa)

Akhgar, Saathoff, Arabnia, Hill, Staniforth, and Bayerl present students, academics, researchers, and professionals with a comprehensive examination of the concepts, theory, and application

of big data in a wide variety of national security contexts. The authors have organized the eighteen chapters that make up the main body of their text in four parts devoted to an introduction to big data, core concepts and application scenarios, methods and technological solutions, and legal and social challenges. Babak Akhgar is a faculty member of Sheffield Hallam University, UK. Gregory B. Saathoff is a faculty member of the University of Virginia. Hamid R. Arabnia is a faculty member of the University of Georgia. Richard Hill is a faculty member of the University of Derby, UK. Andrew Staniforth is a Detective Inspector in the Office of the Police & Crime Commissioner for North Yorkshire, UK. Petra Saskia Bayerl is a faculty member of Erasmus University, The Netherlands.

UA927 9781784711078

Benefit-Cost Analyses for Security Policies: Does Increased Safety Have to Reduce Efficiency?

Edited by Carol Mansfield and V. Kerry Smith
Edward Elgar, ©2015 276 p. \$130.00
Reporting findings from a US Department of Homeland Security research center at the University of Southern California, economists explore the financial cost of anti-terrorism measures. They cover security policies and reducing risks, adaptation and economy-wide effects, and the practical implementation of policy evaluation. Among specific topics are the design of benefit-cost architecture for homeland security policy analysis, the heterogeneity of the value of statistical life: evidence and policy implication, dealing with safety in British public sector project appraisal, urban adaptation to low-probability shocks: contrasting terrorism and natural disaster risk, and the applicability of benefit transfers for evaluating homeland security counter-terrorism measures.

UG468 9781608077786

Military Laser Technology and Systems

David H. Titterton (Artech House Applied Photonics Series)
Artech House, ©2015 651 p. \$199.00
Titterton presents students, academics, researchers, and professionals working in a variety of contexts with a comprehensive resource on the physical principles of device technology

for laser-based military systems. The author has organized the eighteen chapters that make up the main body of his text in three parts devoted to the fundamentals of military laser technology and systems; military laser weapons systems; and safe use, education, and training. David H. Titterton is a visiting faculty member of Cranfield University of the UK Defense Academy.

**PUBLISHING, LIBRARY SCIENCE,
BIBLIOGRAPHY**

Z669 9780838987551

Meaningful Metrics: A 21st-Century Librarian's Guide to Bibliometrics, Altmetrics, and Research Impact

Edited by Robin Chin Roemer and Rachel Borchardt

Assoc. of College & Research Libraries, ©2015
241 p. \$60.00 (pa)

Bonn and Furlough edit this volume on metrics for libraries to assess scholarly journals. Three main parts discuss the metric strategies of impact factor, bibliometrics, and altmetrics, with each section containing a chapter introducing the definition and history of each assessment plus a chapter reviewing its practical applications and specific occurrences in collection management and use. The final part addresses variations in impact assessment and important across different academic disciplines, and the role of librarians in influencing impact.

Z695 9781573875141

The Accidental Indexer

Nan Badgett
Information Today, Inc., ©2015 222 p.
\$39.50 (pa)

Badgett presents readers and publishing professionals with a comprehensive guide to the practice and profession of indexing. The author has organized the main body of her text in ten chapters devoted to what an indexer is and what an indexer does, pathways into professional indexing, the varieties of indexing, best practices in indexing, the tools of the trade, marketing and managing client relations, managing stress and balancing the professional indexer's work and personal lives, and a wide variety of other related subjects. Nan Badgett is a professional indexer.

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